

Gelechiidae (Lepidoptera) of Taiwan III. Systematic Revision of the Genus *Dichomeris* in Taiwan and Japan

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Abstract Forty three species of the *Dichomeris* of Taiwan and Japan are revised, with descriptions of 15 new species (*albula*, *angulata*, *aomoriensis*, *davisi*, *fusca*, *fuscalis*, *lutea*, *linealis*, *lividula*, *lushanae*, *ochreata*, *orientis*, *symmetrica*, *taiwana*, *trilobella*). Twelve species; *Dichomeris autometra* (Meyrick), *D. conclusa* (Meyrick), *D. crambalaeas* (Meyrick), *D. cyprophanes* (Meyrick), *D. cymatodes* (Meyrick), *D. enoptrias* (Meyrick), *D. hoplocrates* (Meyrick), *D. issikii* (Okada), *D. okadai* (Moriuti), *D. pyrrschista* (Meyrick), *D. syngrapta* (Meyrick) and *D. viridescens* (Meyrick), are new combinations in *Dichomeris*. The genus *Hyperecta* Meyrick is synonymized with *Dichomeris*, and *D. kawamurai* Matsumura is newly synonymized with *tostella* Stringer and *limitellus* (Caradja) with *oceanis* Meyrick. An identification key, descriptions and illustrations of habitus, male and female genitalia, and information on hosts are provided. Phylogenetic relationship of the species in the genus are discussed with a cladistic analysis, using 44 morphological characters. Fifteen species-groups of *Dichomeris* are recognized.

Keywords Systematics, phylogeny, revision, Lepidoptera, Gelechiidae, Dichomeridinae, *Dichomeris*, *Hyperecta*, Taiwan, Japan

INTRODUCTION

The present study is a preliminary revision of the species of *Dichomeris* Hübner, that occur in Taiwan and Japan. The genus *Dichomeris*, proposed by Hübner, 1818, and based on the American species, *D. ligulella* Hübner, is a large genus in Gelechiidae. Since 1818, about 80 generic names that are junior synonyms of *Dichomeris* have been proposed. They are based on morphological characters, especially the wing venation,

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the shape of the labial palpus, and the basal segments of antenna. Several of them were synonymized with *Dichomeris* by Walsingham (1911), Sattler (1973), Zimmermann (1978), and Povolny (1980). Hodges (1986) treated 50 of these previously recognized genera as junior synonyms of *Dichomeris*, including *Gaesa* Walker, *Acanthophila* Heinemann, *Hypelictis* Meyrick, *Carbatina* Meyrick, *Uliaria* Dumont, *Musurga* Meyrick, etc. He cited 81 generic names in the synonymy of *Dichomeris*. We note that there is remarkable variation in the morphological characters of the genus.

The subfamily Dichomeridinae is defined as a monophyletic taxon by the following synapomorphies: 1) abdominal sternum 2nd with a pair of venulae; 2) forewing usually with CuA_1 and CuA_2 stalked and directed posteriorly from end of cell; 3) female with an accessory bursa arising from the corpus bursae; and 4) pupal terga 1-2, 2-3, 3-4 with raised, mesial or submesial prominences that form three paired, excavated structures on the margins of the segments. These synapomorphies separate Dichomeridinae from Gelechiinae and Pexicopinae (Hodges, 1986). Synapomorphies 3) and 4) appear to be unique within the Gelechiidae. *Brachmia* Hübner, *Dichomeris* Hübner, *Helcystogramma* Zeller, and *Scodes* Hodges comprise the Dichomeridinae. We do not accept the proposal by Ponomarenko (1992) to treat Dichomeridini, Chelariini, and Anarsiini as tribes of Dichomeridinae. She based her identification of Dichomeridinae on the character state of muscle m4 being separated from the tegumen and arising from the parategumental sclerite. She concluded that Chelariini (with *Anacamptis* Curtis, *Dactylethrella* Fletcher, *Dendrophilia* Ponomarenko, *Faristenia* Ponomarenko, *Hypatima* Hübner, *Neofaculta* Gozmany, *Nothris* Hübner, and *Pexicopia* Common) are closely related to *Dichomeris*.

CLASSIFICATION

Adult. -Male with long cilia on ventral surface of flagellum, except *microsphenia* and *hoplocrates* groups with very short cilia, and *sparsellus* group without sensory cilia. Ocellus usually present, but absent in *picrocarpa*, *cymatodes* groups and part of *acuminata* group. Second segment of labial palpus with well-developed triangular or loose scaletufts anteroventrally; and anteroventral surface of *picrocarpa*, *oxycarpa*, *loxospila* and *autometra* groups thickened with scales; 3rd segment generally slender, but moderately thickened in *picrocarpa*, *rasilella*, *oxycarpa*, *loxospila*, and *autometra* groups. Male sometimes with a pair of scale tufts arising from the mesothoracic anepisternum (unique to the *harmonias*, *lespedezae*, *oceanis*, *acuminata*, and *picrocarpa* groups). Forewing rectangular to elongate; apex relatively pointed; pattern variable; R_3 usually separate, sometimes connate or stalked (*harmonias* and *picrocarpa* groups); R_4 and R_5 and CuA_1 - CuA_2 usually stalked. Hindwing with apex produced; veins R_5 and M_1 stalked; cubital pecten present or absent.

Male genitalia. -Uncus terminating in rounded, pointed, or nearly straight distal margin with stout setae on posterodorsal surface, sometimes with lateral excavation bearing strong setae; gnathos strong, hook shaped, slender; vinculum sometimes having variable broadly expanded lateral lobes, or bifurcated basally, and with heavily sclerotized base or pronounced break in saccal region; sicae usually with heavily sclerotized lobes, arising from a common base or separated each other at base, lacking in *cymatodes*; aedeagus usually free, but ankylosed with heavily sclerotized lobes between aedeagus and sicae in *sparsellus* group, heavily sclerotized lateral lobes arising from zone, variably shaped; cornutus present.

Female genitalia. -Apophyses anteriores very short to 1/2 length of apophyses posteriores; 8th tergum relatively sclerotized distally; antrum broad, often with heavily sclerotized ridges; ductus bursae usually not distinct; corpus bursae usually with heavily sclerotized ridges and always with an accessory bursa; ductus seminalis sometimes with a sclerotized ring at base, often with densely spiculose appendix (*oceanis* group); signum present.

Although *Dichomeris* is widely distributed and has more than 1,000 species throughout the world, it has been poorly collected except for the Nearctic and western Palaearctic regions. Kanazawa and Heppner (1992) reported five species of *Dichomeris* <*diacrita* Diakonoff, *loxospila* (Meyrick), *oceanis* Meyrick, *ochthophora* Meyrick, and *oxycarpa* (Meyrick)> from Taiwan. Of them *oceanis* is a misidentification of *fuscalis* Park et Hodges, and *diacrita* Diakonoff which was described from Philippines, probably is a misidentification of *oxycarpa* (Meyrick). In Japan, where the fauna is relatively well known, 17 species of *Dichomeris* were reported by Moriuti (1982) and Park (1994): *acuminata* (Staudinger), *ferruginosa* Meyrick, *harmonias* Meyrick, *hoplocrates* (Meyrick), *issikii* (Okada) *leptosaris* Meyrick, *lespedezae* Park, *mitteri* Park, *oceanis* Meyrick, *ochthophora* Meyrick, *okadai* (Moriuti), *picrocarpa* (Meyrick), *quercicola* Meyrick, *rasilella* (Herrich-Schäffer), *sparsellus* (Christoph), *tostella* Stringer, and *ustalella* (Fabricius). Of the 43 species treated herein, only four species are common to both countries, 27 species are known from Taiwan and 20 species are known from Japan. The Japanese fauna appears to be affiliated with the Palaearctic, whereas the Taiwanese fauna is associated with or derived from the Oriental fauna. Based on current knowledge, 16 species of *Dichomeris* are endemic to Taiwan. Larval food habits are poorly known; most species are leaf rollers or leaf tiers, but some feed within flower heads, seed pods, form stem or root galls, or mine needles or leaves of their host plants. Larvae have been reared from 26 plant families (Hodges, 1986).

MATERIAL AND METHODS

The specimens on which this study is largely based were collected mainly during

1920-1950's from Taiwan and Japan by Sigeru Issiki. They are preserved in the National Museum of Natural History (USNM), Washington D. C. Some Taiwanese specimens in the USNM were collected by D. Davis in 1980. Additional Taiwanese specimens studied are in the Florida State Collection of Arthropods (FSCA), Gainesville, Florida. They were collected by J. B. Heppner and H. Wang from 1982 to 1990. More than 50 different localities from the northern part of Taiwan, near Taipei, to the southern end, Kenting Park (Pintung Co.) were sampled. We follow the original specimen label data and current locality names are in parentheses for superseded locality names. They are indicated on a map in Appendix 1. Most of species in the USNM are in good condition and represented by several specimens. Three species are known from a single specimen, most by more than five or ten specimens, and *D. oceanis* and *picrocarpa* by more than 50 specimens. Hosts are known for 18 species of *Dichomeris*; some new host records are based on the specimen label data.

All measurement for adults and illustrations of genitalia were effected with a calibrated ocular micrometer. The male genital capsule and accompanying aedeagus are always drawn to the same scale. The eighth abdominal segment, and male and female genitalia are drawn to a different scale. The number of the genital preparation, from which drawing was made, is in parentheses of the legend for the text figures. The terminology and interpretation of morphology used in the description of male and female genitalia are based on Heinrich (1920), Klots (1956), and Hodges (1986). Acronyms for the museum and institutions where the material examined is deposited are the following: USNM- National Museum of Natural History, formerly United States of National Museum, Smithsonian Institution, Washington D.C., USA; FSCA- Florida State Collection of Arthropods, Gainesville, Florida, USA; BMNH- The Natural History Museum, formerly British Museum (Natural History), London, UK; MNHN- Museum National d'Histoire Naturelle, Paris, France; CIS- The Center for Insect Systematics, Kangwon National University, Chuncheon Korea.

PHYLOGENETIC ANALYSIS

Cladistic methology was used to assess relationship among groups within *Dichomeris* that occur in Japan and Taiwan. A data matrix (Table II) was analyzed by PAUP (v.3.1.1.). Twenty-nine taxa representing one or two species from each species group were studied. *Helcystogramma hibisci* (Stainton), *H. trijunctum* (Meyrick), and *Brachmia inornatella* (Douglas) were used as outgroups. Forty-four morphological characters (17 of external morphology, 18 of male genitalia, and 9 of female genitalia [Table I]), were selected and their state ordered. Plesiomorphic states are indicated by "0". Characters were analyzed with the unordered option, equal weighting, and heuristic search with option of at least five random replicates. The consistency index

is 0.331, and the retention index is 0.613. Three equally parsimonious trees were found (Fig. 1). The numbered arrows "2" and "3" indicate the single changes by which the other two trees differ from the one illustrated. In the second tree *cymatodes* arises between *rasilella* and *autometra*. In the third tree *autometra* forms a code with *rasilella*. Bold-faced names are the representatives for the species groups. The hypothesized phylogenetic tree for *Dichomeris* in Taiwan and Japan indicates that the genus *Dichomeris* is monophyletic and is closely related to *Helcystogramma* Zeller and *Brachmia* Hübner. The high degree of homoplasy in many characters and several highly distinctive autapomorphic characters have led authors to propose an extremely large number of generic names for subsets of *Dichomeris*. Some of the species groups have had generic names proposed for them (e. g., *Gaesa*, *Carbatina*, and *Cymotrichia*), others are newly recognized. Based on the results of our analysis, 15 species-groups are recognized for *Dichomeris* species in Taiwan and Japan. Many of them differ from those proposed for the species of America North of Mexico by Hodges (1986).

Species groups of Taiwanese and Japanese *Dichomeris*:

- 1). *harmonias*-group: *D. harmonias* Meyrick.
- 2). *oceanis*-group: *D. aomoriensis* Park and Hodges, *fuscalis* Park and Hodges, *oceanis* Meyrick, *symmetrica* Park and Hodges, *tostella* Staudinger, and *ustalella* (Fabricius),
- 3). *acuminata*-group: *D. acuminata* (Staudinger), *davisi* Park and Hodges, *ferruginosa* Meyrick, *horoglypta* Meyrick, *leptosaris* Meyrick, *malacodes* (Meyrick) *mitteri* Park, *ochreatea* Park and Hodges, *ochthophora* Meyrick, *orientis* Park and Hodges, and *summata* Meyrick.
- 4). *lushanae*-group: *D. albula* Park and Hodges, *crambalaes* (Meyrick), and *lushanae* Park and Hodges.
- 5). *lespedezae*-group: *D. lespedezae* Park and *quercicola* Meyrick.
- 6). *picrocarpa*-group: *D. fusca* Park and Hodges, *lutea* Park and Hodges. *picrocarpa* (Meyrick), and *taiwana* Park and Hodges,
- 7). *pyrroschista*-group: *D. pyrroschista* (Meyrick).
- 8). *microsphena*-group: *D. microsphena* (Meyrick).
- 9). *sparsellus*-group: *D. angulata* Park and Hodges, *atomogyrsa* (Meyrick), *trilobella* Park and Hodges, and *sparsellus* (Christoph),
- 10). *oxycarpa*-group: *D. oxycarpa* (Meyrick).
- 11). *rasilella*-group: *D. rasilella* (Herrich-Schäfffer).
- 12). *autometra*-group: *D. autometra* (Meyrick)
- 13). *loxospila*-group: *D. loxospila* (Meyrick).
- 14). *hoplocrates*-group: *D. hoplocrates* (Meyrick), *linealis* Park and Hodges, and *lividula* Park and Hodges.
- 15). *cymatodes*-group: *D. cymatodes* (Meyrick).

Table I. Description of character states for cladistic analysis**Adult**

1. Antenna with sensory cilia on ventral surface of flagellum in male: absent(0), present(1).
2. Ocellus: absent (0), present (1).
3. Ventral surface of 2nd segment of labial palpus: simply thickened with appressed scales (0), with triangular scale tuft extended anteriorly (1), with rectangular scale tuft directed ventrally (2).
4. Dorsal scale tuft of 2nd segment of labial palpus: absent (0), with rough scales (1), well-developed scale tufts (2).
5. 3rd segment of labial palpus: rather thickened (0), slender (1).
6. Ratio of length of 3rd segment of labial palpus to 2nd: equal (0), longer (1).
7. A pair of long hairpencils arising from anepisternum on mesothorax in male: absent (0), present (1).
8. Shape of forewing: moderately broad (0), lanceolate (1), elongated or dilated distally (2).
9. Apex of forewing: obtuse (0), produced or acute (1).
10. Metallic scales on forewing: absent (0), present (1).
11. Relationship of vein R_3 to vein R_{4+5} in forewing: separate (0), connate (1), stalked (2).
12. Veins CuA_1 and CuA_2 of forewing: separate (0), connate (1), stalked (2).
13. Cubital pecten in hindwing: absent (0), present (1).
14. Apex of hindwing: obtuse (0), rather pointed (1).
15. Discal cell in hindwing: open (0), closed (1).
16. Secondary radial rectinaculum on hindwing: absent (0), present (1).

Male genitalia

17. Shape of uncus: generally elongated or rather pointed (0), short, with rounded distal margin (1), flat or modified distal margin, excavated laterally (2).
18. Shape of gnathos: normal, relatively short (0), slender, 1/3 length of valva or more (1).
19. Condition of free ventral lobes of valva: absent (0), digitate or short (1), spatulate or long and bar shaped (2).
20. Length of valva: shorter than or attaining apex of uncus (0), exceeding apex of uncus (1).
21. Length of vinculum to length of tegumen plus uncus: shorter or almost equal (0), longer (1).
22. Vinculum with sclerotized lobes arising from near base: absent or with simple protrusion (0), present (2).

23. Vinculum with sclerotized lobes arising before middle: absent (0), present (1).
24. Saccal region of vinculum: straight or convex (0), emarginate (1), with a strong break (2).
25. Number of lobes of sica: absent (0), one (1), multilobed (2).
26. Lobes of sicae: joined for a short distance (0), fused basically, then parallel (1), separated at base (2).
27. Condition of sicae: symmetrical or almost symmetrical (0), asymmetrical (1).
28. Condition of appendix appendicular bearing long scale tuft near base of valva: moderately broad (0), elongated with a long neck (1), extremely longated (2).
29. Juxta: absent (0), well developed (1).
30. Condition of aedeagus: free (0), ankylosed (1).
31. Cornutus in aedeagus: absent (0), present (1).
32. Lateral lobe(s) in aedeagus: absent (0), present (1).
33. Sclerotized lobes arising from zone of aedeagus: absent (0), present (1).
34. A pair of lobes arising from membranous wall near base of the vinculum: absent (0), present.
35. Caudal margin of 8th tergum in male with short lobes laterally: absent (0), present (1) .

Female genitalia

36. Dorsomedian free plate beyond 8th segment: absent (0), present (1).
 37. Length of apophyses anteriores: very short (0), 1/6-1/4 length of apophyses posteriores (1), more than 1/3 length of apophyses posteriores (2).
 38. Ductus bursae and corpus bursae: ductus bursae well defined (0), ductus bursae not distinct from corpus bursae (1).
 39. Secondary bursa in ductus seminalis: normal, membranous (0), inner wall densely spiculose (1).
 40. Ductus seminalis with heavily sclerotized ring near base: absent (0), present (1).
 41. Condition of corpus bursae: membranous (0), with patches of weak spicules on inner wall partly (1), densely covered with inwardly directed spicules (2).
 42. Sclerotized ridges in corpus bursae: absent (0), present (1).
 43. Signum in corpus bursae: absent (0), present (1).
 44. Caudal margin of papillae anales: normal (0), short strong setae developed along margin (1).
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Table II. Data Matrix for the genus *Dichomeris* in Taiwan and Japan.

| | 1 | 111111112 | 222222222 | 333333334 | 4444 |
|-------|------------|------------|------------|------------|------|
| Taxon | 1234567890 | 1234567890 | 1234567890 | 1234567890 | 1234 |
| Dha | 1112111210 | 2210101011 | 0102200000 | 0110100001 | 1100 |
| Dle | 1122111010 | 0210101011 | 0002200000 | 0110102000 | 1110 |
| Dac | 1112111110 | 0211101111 | 1100210000 | 1000102000 | 1100 |
| Dlp | 0121101110 | 0211101110 | 0001210100 | 0000102000 | 0000 |
| Dda | 1121110110 | 0211101110 | 0001211100 | 0000102000 | 1100 |
| Dma | 1112110110 | 1211001110 | 0000220000 | 10001????? | ???? |
| Dqe | 1122111010 | 0210101011 | 0002200000 | 0010101010 | 1110 |
| Doc | 1112111200 | 0210101011 | 1012200000 | 1110101011 | 1110 |
| Dus | 1112111200 | 0210101011 | 1012200000 | 1110101011 | 1000 |
| Dao | 1112111200 | 0210101011 | 1002200000 | 1110100010 | 1110 |
| Dsp | 0112110200 | 0200101021 | 1000201101 | 1111012100 | 0000 |
| Dtr | 0112110210 | 0200101021 | 1000221101 | 1111001100 | 0100 |
| Dra | 1102000000 | 0210101011 | 0001201000 | 0010002100 | 0000 |
| Dox | 1102010210 | 0200101120 | 0000200100 | 1010002000 | 0010 |
| Dho | 1100000001 | 0200102110 | 001010?000 | 0000000100 | 2001 |
| Dpi | 1001011210 | 1210101120 | 0010220100 | 0110001101 | 1000 |
| Dta | 1001011210 | 1210101120 | 0010220100 | 0110001101 | 1000 |
| Dlu | 1102110210 | 0200101021 | 0100221000 | 01000????? | ???? |
| Dal | 1002110210 | 0200001021 | 0100221000 | 1000000001 | 1110 |
| Dan | 1112110210 | 0201101011 | 1000200101 | 1011011000 | 0000 |
| Dmi | 1112110010 | 0210102010 | 0010200000 | 0010000001 | 0100 |
| Dcy | 1002100000 | 0210011010 | 000000?100 | 1000001101 | 1000 |
| Dlo | 1102010000 | 0210001010 | 0200200000 | 0110001000 | 0000 |
| Dau | 1102000000 | 0210001011 | 0000200000 | 0101001100 | 0000 |
| Dcr | 1112110210 | 0200102021 | 1100201000 | 11100????? | ???? |
| Dpy | 1002111200 | 1211101011 | 0001200000 | 0010112101 | 1000 |
| Bin | 0000000010 | 2201000000 | 00000??110 | 0000000000 | 0000 |
| Hhi | 0001000010 | 2010010110 | 01000??000 | 0000002100 | 1100 |
| Htr | 0002200010 | 2200010110 | 01000??000 | 0000002100 | 1000 |

* Dha: *harmonis* Meyrick, Dle: *lespedezae* Park, Dac: *acuminata* Staudinger, Dlp: *letosaris* Meyrick, Dda: *davisi* Park et Hodges, Dma: *malacodes* (Meyrick), Dqe: *quercicola* Meyrick, Doc: *oceanis* Meyrick, Dus: *ustalella* (Fabricius), Dao: *aomoriensis* Park and Hodges, Dsp: *sparsellus* Christoph, Dtr: *trilobella* Park Hodges, Dra: *rasilella* (Herrich-Schäffer), Dox: *oxycarpa* (Meyrick), Dho: *hōroglypta* Meyrick, Dpi: *picrocarpa* Meyrick, Dta: *taiwana* Dlu: *lushanae* Park & Hodges, Dal: *albula* Park et Hodges, Dan: *angulata* (Snellen), Dmi: *mitteri* Park, Dcy: *cymatodes* (Meyrick), Dlo: *loxospila*, Dau: *autometra* (Meyrick), Dcr: *crambalaeas* (Meyrick), Dpy: *pyrroschista* (Meyrick), Bin: *Brachmia inornatella* (Douglas), Hhi: *Helcystogramma hibisci* (Stainton), Htr: *Helcystogramma trijunctum* (Meyrick).

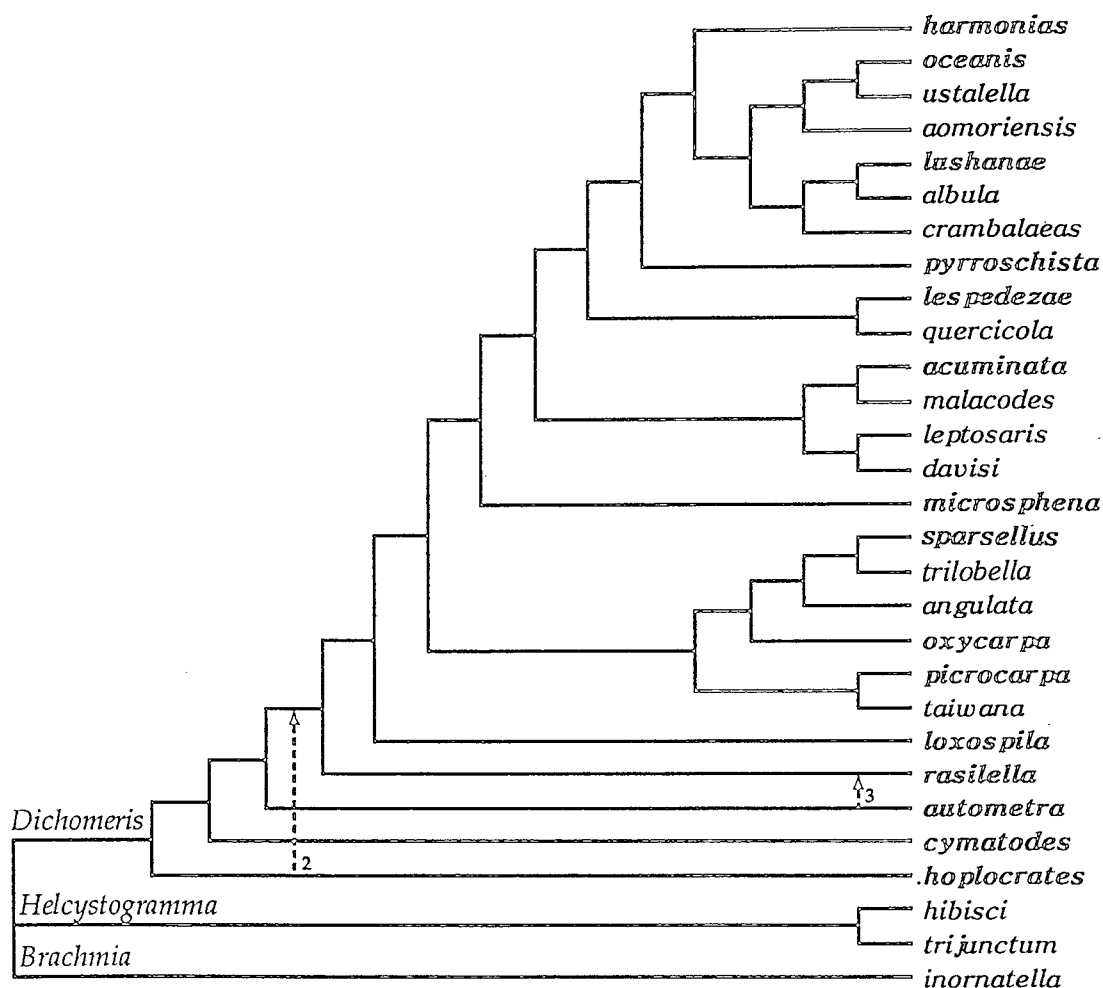


Fig. I. Cladogram of *Dichomeris*: strict consensus of three most parsimonious trees (tree length= 172, consistency index= 0.331, homoplasy index= 0.669, retention index= 0.613)

Genus *Dichomeris* Hübner, 1818

Zutr. Samml. exot. Schmett., 1: 25.

Type species: *Dichomeris ligulella* Hübner, 1818.

For extensive synonymy see Hodges (1986: 10-14).

The 43 species of *Dichomeris* in Taiwan and Japan can be associated into 15 distinct species-groups based on their external and genital morphology.

Key to species groups based on external characters

- 1. Forewing narrow, lanceolat *acuminata* group
- Forewing moderately elongate, or dilated distally 2

2. Second segment of labial palpus with well-developed scale tufts ventrally, expanding triangularly or rectangularly (Figs. 97-101, 107-108) 3
 - Second segment of labial palpus moderately thickened, with rather appressed scales (Figs. 111-115) 7
3. Forewing moderate; apex produced or acute *lespedezae* group
 - Forewing elongate, dilated distally; apex obtuse 3
4. Forewing with R_3 stalked with R_{4+5} *harmonias* group
 - Forewing with R_3 separate 5
5. Hindwing with cubital pecten; male with a pair of long hair-pencils arising from mesothoracic anepisternum *oceanis* group
 - Hindwing without cubital pecten; male lacking such hair-pencils 6
6. Forewing moderately broad; flagellum of antenna with very short sensory cilia on ventral surface *microsphena* group
 - Forewing elongate, broader distally; antenna without sensory cilia on ventral surface *sparsellus* group
7. Forewing with ground color light orange, with reddish-orange longitudinal streaks along veins *pyrroschista* group
 - Forewing variable ground color, without such streaks 8
8. Forewing with shining leaden blue surface *hoplocrates* group
 - Forewing without a shining metallic surface 9
9. Male with a pair of long hairpencils arising from mesothoracic anepisternum *picrocarpa* group
 - Male lacking such hairpencils 10
10. Forewing with costal blotch 11
 - Forewing without costal blotch 12
11. Ocellus present *oxycarpa* group
 - Ocellus absent *cymatodes* group
12. Hindwing with cubital pecten 13
 - Hindwing without cubital pecten *lushanae* group
13. Forewing with R_4 and R_5 stalked 14
 - Forewing lacks of R_5 *rasilella* group
14. Forewing with a well-developed median fascia forming a large dark-brown blotch *loxospila* group
 - Forewing without such fascia, with several dark-brown strigulae along anterior margin *autometra* group

Key to species groups based on genital characters

1. Male 2
 - Female 15
2. Uncus with distal margin rounded 3

- Uncus with projections on distal margin *microsphena* group
- 3. Sicae a single lobe or absent 4
- Sicae usually two lobed or multilobed 5
- 4. Sicae absent *cymatodes* group
- Sicae single lobed *hoplocrates* group
- 5. Aedeagus free 6
- Aedeagus ankylosed with sicae or appendix lobe(s) *sparsellus* group
- 6. Gnathos slender, about 1/2 length of valva or more; sicae arising from a common base, often fused with each other for more than 1/3 length . . . *acuminata* group
- Gnathos usually short, less than 1/3 length of valva; sicae joined for short distance or arising separately and distant 7
- 7. Sicae joined for short distance 8
- Sicae arising separately and distant 14
- 8. Aedeagus with lobe(s) arising from zone *autometra* group
- Aedeagus with well-developed lateral lobes 9
- 9. Vinculum with strong break at saccal region 10
- Vinculum with almost straight or round saccal region 11
- 10. Vinculum with well-developed basal lobes *harmonias* group
- Vinculum without basal lobe, but usually with lateral lobes *oceanis* group and *lespedezae* group
- 11. Valva greatly exceeding apex of uncus 12
- Valva attaining apex of uncus 13
- 12. Sicae approximate, asymmetrical *rasilella* group
- Sicae separate at base, almost symmetrical *pyrroschista* group
- 13. Uncus with distal margin convex mesially; gnathos slender, strongly curved in U-shape; vinculum slender without lateral lobes; saccal region rounded *oxycarpa* group
- Uncus with distal margin rounded; gnathos short; vinculum with lateral lobes; saccal region almost straight *loxospila* group
- 14. Vinculum with slender lateral lobes, saccal region convex; aedeagus with strong lobes from zone; cornutus absent *picrocarpa* group
- Vinculum with very strong or long lobes near base, saccal region almost straight; aedeagus with cornutus short or absent *lushanae* group
- 15. Corpus bursae densely covered with inwardly directed, strong spicules *hoplocrates* group
- Corpus bursae lacking spicules or partly covered with weak spicules, usually with sclerotized ridges 16
- 16. Ductus seminalis with secondary bursa densely spiculose on inner surface, usually connected with heavily sclerotized ring *oceanis* group
- Ductus seminalis with secondary bursa lacking spicules on inner surface

. all other groups (except *quercicola*)

harmonias group

Dichomeris harmonias is the only member of the group in Japan and Taiwan. The geographic range of *harmonias* is restricted to Japan, Korean peninsula, Russian Far East, and S. China. The species group is defined by the following characters: forewing moderately broad; ocellus absent; 2nd segment of labial palpus with well-developed scale tufts; 3rd segment very slender; male with a pair of long scale tufts arising from the mesothoracic anepisternum; hindwing with cubital pecten; gnathos relatively short, vinculum with heavily sclerotized lobes basally, with a strong break in the saccal region; lobes of sicae joined for a short distance, almost symmetrical; aedeagus with a slender lateral lobe and a triangular lobe arising from zone, lacking cornutus.

Dichomeris harmonias Meyrick (Pl. A-1)

Dichomeris harmonias Meyrick, 1922, Exot. Microl., 2: 504; Meyrick, 1925: 176; Gaede, 1937: 270; sensu Issiki, 1957: 40, pl. 6, fig. 173; sensu Okano, 1959: 270, pl. 179, fig. 31; sensu Moriuti, 1982: 1/285, 2/215, pl. 13, fig. 26; sensu Park, 1983: 504, fig. 166. (Lectotype: ♂, Sanghai, Southern China, RWH-5169, designated by Park, 1994).

DIAGNOSIS. This species is close to *lespedezae* superficially, but it can be easily separated from the latter by genital characters.

DESCRIPTION. Forewing length, 6.0-8.0mm. Park (1994) designated a lectotype based on a male type specimen, which is deposited in the Joannis collection, MNHN, Paris.

Male and female genitalia. See Park(1994: figs. 2a-c) for description and illustration.

MATERIAL EXAMINED. <Japan>: 1♂, Iwawakisan, Honshu, 24. VII. 1952 (S. Issiki); 1♂, Kinki, Honshyu, 24. VII. 1952(S. Issiki), gen. prep. USNM-11586/Hodges 1♀, Ano, Nara, Honshu, 24. VI. 1957(T. Kodama), gen. prep. USNM-87353/Park.

DISTRIBUTION. Japan (Honshu), Korea (South), S. China.

HOST. Unknown.

oceanis group

Dichomeris oceanis, *fuscalis*, *ustalella*, *tostella*, *aomoriensis*, and *symmetrica* comprise the *oceanis* group in Taiwan and Japan. The species-group is well agree to the *setosella*-group of America North of Mexico recognized by Hodges (1986). The Palaearctic species *fasciella* (Hübner), and *strictella* Park, described from Korea, are also included in this species group. It is characterized by following: forewing length

usually longer than 8.0 mm, with developed forewing pattern; 2nd segment of labial palpus triangular or rectangular; 3rd segment extremely slender, strongly upturned; ocellus present; male with a pair of long scale tufts from mesothoracic anepisternum; hindwing with cubital pecten; vinculum usually with lateral lobes or a pair of sclerotized lobes basally; saccal region with a strong break; lobes of sicae joined for short distance, mesial margin U-shaped basally; ductus seminalis usually with a long secondary bursa which has densely spaced, inwardly directed spicules on inner surface, usually connected with a heavily sclerotized ring near base.

Key to the species based on external characters

1. Forewing length 8.0 mm or more 2
 - Forewing length 6.2 mm or less *symmetrica*
2. Forewing extremely elongate, ground color brownish ochreous; *ustalella*
 - Forewing moderately elongate, ground color variable 3
3. Forewing with well-developed, dark-brown fascia 4
 - Forewing without such fascia 5
4. Dark-brown fascia on anterior margin of forewing broadly connected with median fascia; apex relatively obtuse *fuscalis*
 - Dark-brown fascia on anterior margin of forewing separated from median fascia; apex sharply pointed *oceanis*
5. Forewing yellowish ochreous, with acute apex *tostella*
 - Forewing brownish gray, with obtuse apex *aomoriensis*

Key to the species based on genital characters

1. Male 2
 - Female 6
2. Lobes of sicae symmetrical or almost symmetrical 3
 - Lobes of sicae asymmetrical 4
3. Lateral lobes of vinculum sharply pointed and heavily sclerotized; aedeagus with short lobes from zone *oceanis*
 - Lateral lobes of vinculum weakly developed; aedeagus with strongly sclerotized lateral lobes *fuscalis*
4. Vinculum with digitate lateral lobes beyond middle; lobes of sicae short, simple *ustalella*
 - Vinculum lacking lateral lobes; lobes of sicae stout, strongly dentate along lateral margins 5
5. Aedeagus stout, long, about 4/5 x length of genitalia; lateral lobes extending posteriorly *tostella*
 - Aedeagus rather short, about 2/3 x length of genitalia; lateral lobes strongly bent, extending laterally or dorsally *aomoriensis*

6. Ductus seminalis with a heavily sclerotized ring at base and a spiculose secondary bursa in ductus seminalis 7
- Ductus seminalis lacking such ring at base and spiculose secondary bursae *symmetrica*
7. Ductus bursae broad, not well distinguished from corpus bursae, with heavily sclerotized, longitudinal ridges 8
- Ductus bursae rather narrow, well distinguished from corpus bursae, only with weak, small ridges *ustalella*
8. Ductus seminalls arising from anterior part or before middle of ductus bursae . . 9
- Ductus seminalis arising from beyond middle of ductus bursae 10
9. Apophyses anteriores less than 1/5 length of apophyses posteriores; corpus bursae with dense spicules on anterior half dorsally *tostella*
- Apophyses anteriores about 1/4 length of apophyses posteriores; corpus bursae membranous, lacking spicules on the wall *fuscalis*
10. Secondary bursa large, about equal to the length of corpus bursae plus ductus bursae *oceanis*
- Secondary bursa small, about 1/3 length of corpus bursae plus ductus bursae *aomoriensis*

***Dichomeris oceanis* Meyrick** (Figs. 1, 1a, 2, 72, 72a, 98, Pl.A-2)

Dichomeris oceanis Meyrick, 1920, Exot. Microl., 2: 306; Meyrick, 1925: 177, Caradja and Meyrick, 1935: 72; Gaede, 1937: 441; Issiki, 1957: 41, pl. 6, fig. 172; Okano, 1959: 270, pl. 179, fig. 30; Clarke, 1969: 43, pl. 16, fig. 5; Saito, 1969: 114, fig. 219; Liu, 1981: 19, pl. 4, fig. 71; Moriuti, 1982: 1/285, 2/215, pl. 13, fig. 37; Park, 1983: 503, fig. 165. (Type: ♀, Japan, BMNH-8570).

Ypsolopha limitellus Caradja, 1926: 42. Date was erroneously cited as 1920 by Gaede (1937), **syn. nov.**

Dichomeris yunagawanus Matsumura, 1931: 1083, no. 2208 (Type: ♀, Japan).

Dichomeris heriguronis Matsumura, 1931: 1084, no. 2214 (Type: ♀, Japan).

DIAGNOSIS. This species is characterized by the forewing having a large dark-brown patch on the discal cell and the dark-brown fascia along termen, which are connected in a S-shape.

DESCRIPTION. Forewing length, 8.0-11.0 mm.

Male genitalia (Figs. 1, 1a, 2): Gnathos relatively small; culcitula with round distal margin. Valva greatly exceeding apex of uncus, anterior margin narrowed from about 3/4 length; ventral free lobe short, stout. Vinculum almost equal to length of tegumen plus uncus, with short, acute lateral lobe near middle; saccal region strongly emarginate mesially. Lobes of sicae symmetrical, about 3/4 length of valva, joined for a short distance, mesial margin U-shaped basally; with a triangular projection at about

4/5 length on left lobe, and 3/4 length on right lobe, and a ventral denticle near apex. Aedeagus about equal to vinculum plus valva in length; lateral processes heavily sclerotized, triangular; cornutus nearly straight, about 2/3 length of aedeagus.

Female genitalia (Fig. 72, 72a): Distal part of 8th tergum strongly convex at middle. Antrum extremely broad, with pouchlike free flaps on caudal margin laterally, width about 2 x longer than length. Ductus bursae not well distinguished from corpus bursae, with a large U-shaped sclerite in junction with corpus bursae ventrally, with two other large triangular ridges laterally, dorsal wall weakly sclerotized; ductus seminalis arising from lateral side of basal part of corpus bursae, with a heavily sclerotized ring near base. Corpus bursae membranous, with two weakly sclerotized footlike signa on dorsal wall, where accessory bursa originates, posterior half densely spinulose.

MATERIAL EXAMINED. <Japan>: 1 ♀, Sobosan, Kyushu, 3. VII. 1937 (S. Issiki); 35 ♂, 34 ♀, Shindenbaru, Fukuoka, Kyushu, 5-12. V. 1940, bred on *Wisteria* sp. by R. W. Burrell, gen. prep. USNM-87334/Park; 1 ♂, Matsuyama, Shikoku, 17. VI. 1961 (M. Okada); 1 ♀, Takasuki, Osaka, Honshu, 13. VI. 1948 (S. Ito); 1 ♀, Iwawakisan, Kinki, Osaka, Honshu, 10. VI. 1951 (A. Mutuura), gen. prep. USNM-87335/Park; 1 ♂, Dorogawa, Yamato, Kinki, 29. VII. 1951 (A. Mutuura); 1 ♂, Sakai, Osaka, 4. VI. 1954 (T. Kodama), gen. prep. USNM-11699/Hodges; 1 ♂, Inunakisan, Kinki, Honshu, 3. IX. 1956 (S. Issiki); 1 ♂, Hieisan, Kinki, Honshu, 23. VIII. 1949 (S. Issiki); 1 ♂, Mt. Ontake, Nagano, Honshu, 2. VIII. 1953 (A. Mutuura); 1 ♀, Mikusayama, Kinki, 16. VI. 1966 (S. Issiki), gen. prep. USNM-11650/Hodges; 1 ♂, Hakone, Honshu, 4. VII. 1932 (S. Issiki); 1 ♂, Takaosan, Honshu, 18. VIII. 1959 (H. Inoue); 1 ♂, Ussui-Pass, Gunma, Honshu, 29. VII. 1958 (A. Kawabe).

DISTRIBUTION. Japan (Honshu, Shikoku, Kyushu), Korea (South, Central), China, Russian Far East.

HOSTS. *Wistaria floribunda* (Willd) DC., *W. japonica* S. et Z., *Wistaria* sp. (Fagaceae) have been reported from Japan (based on the specimen's label by R. W. Burrell, 1940; T. Saito, 1969).

REMARKS. Clarke (1969) designated a female lectotype, and figured the wings and female genitalia. A slight difference is found in the shape of sicae and lateral lobes of vinculum (fig. 1 & 1a) between Korean and Japanese specimens, but it is not significant and is considered to be infraspecific variation. Walsingham (1906) misidentified this species as "*Ypsolophus limitellus*," on his identification label, without publication. Caradja (1920) first reported this species as "*Ypsolophus limitellus* Walsingham, Kasakewitsch, Tjutjuje," and he (1926) described this species as new after the same name by Walsingham, based on 3 males and 2 females from Kasakewitsch, Chabarowka (Korb) and Tjutjuje (Mau). However, Gaede (1937) erroneously cited the original description as "Deut. Ent. Z. Iris, 34, p. 113 (1920), from Amur and Ussuri" in the *Lepidopterorum Catalogus*. Two male specimens, which are indicated as "paratypes of *Dichomeris limitella* Walsingham, Wlsm-1906, paratype

no. 4646, 11/13; 4650-12/13 and 13/134," without locality data, are preserved in the USNM.

Dichomeris fuscalis Park & Hodges, sp. nov. (Figs. 3, 4, 73, 73a, Pl.A-3)

DIAGNOSIS. This species has been misidentified as *oceanis* Meyrick in Taiwan by Kanazawa and Heppner (1992), due to its superficial similarity. Forewing elongate, apex relatively obtuse, instead of slightly broadened posteriorly and sharply pointed apex in *oceanis*; pattern very similar to *oceanis*, dark-brown fascia on anterior margin broadly connected with median fascia, but separate from small discal streak; subterminal fascia followed by grayish-orange line instead of white line in *oceanis*. It can be easily differentiated by genital characters.

DESCRIPTION. Forewing length, 8.0-8.5 mm. Head grayish brown. Antenna with a elongate brownish-gray pedicel, alternating brown-orange and dark-brown annulations on flagellum. Second segment of the labial palpus dark brown on the outer surface, slightly suffused with creamy white on anterior margin, grayish orange mesially on inner surface; 3rd segment slender, longer than the 2nd, dark brown ventrally. Thorax brownish gray on dorsal surface, grayish orange laterally. Tegula brownish orange with dark-brown scales on anterior margin. Ventral surface of legs grayish brown; hindtibia grayish orange dorsally, except basal 1/4 and distal 1/4. Forewing elongate, with relatively obtuse apex, dark-brown fascia on anterior margin broadly connected with median fascia, but separate from small discal streak; subterminal fascia followed by grayish-orange line; usually without a subbasal fascia near posterior margin. Hindwing dark gray; apex sharply pointed.

Male genitalia (Figs. 3, 4): Uncus with a pair of long setae on dorsodistal surface, anterior margin rounded. Gnathos small; culcitula very small, with produced distal margin. Valva relatively broad, greatly exceeding apex of uncus, anterior margin narrowed at 4/5 length; ventral free lobe rather digitate, with clavate apex. Vinculum about equal to tegumen plus uncus in length, strongly arcuated with a broad membranous expansion basally; saccal region with a strong break. Sicae symmetrical, with strong projections at 1/2 and the other small terminal one prior to apex; mesial margin widely separated in a U-shape basally. Aedeagus with characteristic lateral lobes: left lateral lobe long, with basal and terminal hornlike extensions, variable denticles along lateral margin (these characters are variable within a species); dorsal lobe from zone broad, with obtuse apex; ventral lobe about 2/3 length of the dorsal one with truncate distal margin, with a short, stout free lobe at base ventrally; cornutus strong, longer than 1/2 length of aedeagus, horn shaped.

Female genitalia (Fig. 73, 73a): Eighth tergum with distal margin straight, instead of convex mesially in *oceanis*. Apophyses anteriores about 1/4 length of apophyses posteriores. Antrum broad, weakly sclerotized, not well differentiated from ductus

bursae, right lateral ridge extending beyond middle of corpus bursae; ductus seminalis connected with long membranous duct, which is followed by a secondary bursa that bears spicules on inner surface. Corpus bursae ovate, posterior 1/3 heavily sclerotized, with characteristically sclerotized plates; accessory bursa arising from anterior part of corpus bursae dorsally.

TYPES: Holotype: ♂, Taipei Co., Taihoku, Taiwan, 7. VI. 1946 (S. Issiki), gen. prep. USNM-11683/Hodges; Paratypes: 1♂, same locality as holotype, 15. VI. 1946 (S. Issiki), 1♀, same locality and date as holotype, gen. prep. USNM-11684/Hodges; 1♀, Pingtung Co., Kenting Bot. Garden, Taiwan, 22-25. VII. 1980 (D. Davis), 1♂, Nantou Co., Lushan, ca. 300 m, Taiwan, 27-31. V. 1980 (D. Davis), gen. prep. USNM-87336/Park. Types are in USNM.

DISTRIBUTION. Taiwan.

HOST. According to a specimens label, larva was reared from *Wistaria* sp. (Leguminosae)

***Dichomeris ustalella* (Fabricius) (Figs. 7, 8, 75, 75a, Pl. A-4)**

Tinea ustalella Fabricius, 1794, Ent. Syst., 3 (2): 307. (Type: Italy, Armenien).

Tinea capucinella Hübner, 1796, Eur. Schmett., Tineen: 159.

Ypsolophus cornutus Fabricius, 1798, Suppl. Ent. Syst.: 505.

Ypsolophus ustatus Fabricius, 1798, Suppl. Ent. Syst.: 506.

Rhinosia ustalella; Treitschke, 1833: 11.

Hypsolopha ustalella; Herrich-Schäffer, 1854: 154.

Hypsolophus ustalella; Frey, 1856: 139.

Ypsolophus ustalella; Heinemann, 1870: 338.

Dichomeris ustalella; Meyrick, 1928: 647, Gaede, 1937: 444; Issiki, 1957: 42, pl. 6, fig. 174; Okano, 1959: 270, pl. 179, fig. 32; Povolný, 1978: 140, figs. 11-12; Moriuti, 1982: 1/284, 2/215, pl. 13, fig. 35; Park, 1983: 503.

DIAGNOSIS. This species is characterized by the brownish-ochreous ground color of the forewing and brownish-gray color of the hindwing.

DESCRIPTION. Forewing length, 9.5-10.5 mm.

Male genitalia (Figs. 7, 8): Uncus relatively long, distal margin round. Gnathos rather short. Vinculum relatively slender; lateral lobe arising before middle, slender. Lobes of sicae asymmetrical; left lobe about 2/3 length of vinculum; right one shorter than left, with dilated, hairy apex. Aedeagus stout, with a large flaplike lateral lobe on left side; cornutus horn shaped, 1/3 length of aedeagus.

Female genitalia (Fig. 75, 75a): Distal margin of 8th tergum slightly produced. Ductus bursae simple, with parallel lateral walls; ductus seminalis arising from the posterior part of corpus bursae, with a long secondary bursa bearing many inwardly

directed spicules. Corpus bursae ovate, anterior half membranous; signum a large V-shaped sclerite near middle at right side; accessory bursa arising from anterior wall of bursae.

MATERIAL EXAMINED. <Japan>: 1♂, Sapporo, Hokkaido, 4. VI. 1918 (S. Issiki); 1♂, Iwawakisan, Kinki, Honshu, 25. V. 1950 (A. Mutuura), gen. prep. USNM-11588/Hodges; 1♀, Iwawakisan, 26. V. 1920 (S. Issiki); 1♀, Iwawakisan, 22. V. 1920 (S. Issiki).

DISTRIBUTION. Japan (Hokkaido, Honshu, Kyushu), Korea (South, Central, North), Russian Far East, Europe. It is widely spreaded over the Palaearctic Region, from the Russian Far East to Europe.

HOSTS. *Corylus heterophylla* var. *thunbergii* Blume (Corylaceae) has been reported from Europe, and *Quercus serrate* Thunberg (Fagaceae) from Japan (Moriuti, 1982).

REMARK. One of the two authentic specimens which are presented in Kiel collection was designated as a lectotype (female) by Karsholt (1976).

***Dichomeris tostella* Stringer (Figs. 5, 6, 74, 74a, Pl. A-5)**

Dichomeris tostella Stringer, 1930, Ann. Mag. nat. Hist., (10) 6: 415; Gaede, 1937: 444; Inoue, 1954: 70; Issiki, 1957: 42, pl. 6, fig. 175; Okano, 1959: 270, pl. 179, fig. 33; Moriuti, 1982: 1/284, 2/215, pl. 13, fig. 34; Park, 1983: 504. (Type: Japan).

Dichomeris kawamurai Matsumura, 1931: 1082, no. 2206, **syn. nov.**

DIAGNOSIS. *Dichomeris tostella* is close to *ustalella* (Fabricius) superficially, but differs in the ground color of forewing: yellowish ochreous, instead of brownish ochreous in *ustalella*. It was described from Japan and is a common species there.

DESCRIPTION. Forewing length, 18.0-23.0 mm.

Male genitalia (Figs. 5, 6): Valva exceeding apex of uncus; ventral free lobe short, spatulate. Vinculum about equal length of tegumen plus uncus, pointed basally; saccal region with strong break; lacking lateral lobes. Lobes of sicae asymmetrical; left lobe as long as valva, with a small branch near basal 1/3, serrated along ventral margin; right one similar to the left, but shorter. Aedeagus stout, maximum width about 2/5 length; cornutus heavily sclerotized; lateral lobes well-developed and characteristic.

Female genitalia (Fig. 75, 75a): Apophyses anteriores short. Antrum broad, with membranous sacs ventrolaterally. Ductus bursae not distinct with several irregularly sclerotized plates; ductus seminalis arising from right side of the corpus bursae, with a sclerotized ring near base, secondary bursa densely spiculose. Corpus bursae with dense spicules distally, membranous basally; accessory bursa arising from ventral surface anteriorly; signum absent.

MATERIAL EXAMINED. <Japan>: 1♀, Tyuzenzi, Honshu, 22. IV. 1932 (S. Issiki); 1♀, Daisen, Honshu, 11. VIII. 1950 (S. Issiki); 1♂, Harima-onsui, Kinki,

Honshu 31. VIII. 1950 (S. Issiki); 1♂, 1♀, Kyoto, Kinki, 1. VI. 1951 (S. Issiki); 1♀, Garyusan, Aki, Seibu, Honshu, 3. VI. 1953 (S. Issiki); 1♂, Sigagoken, Sinano, Tyubu, Honshu, 14. VI. 1953 (S. Issiki), gen. prep. USNM-11589/Hodges; 1♀, Iwawakisan, Kinki, Honshu, 8. IV. 1955 (S. Issiki) reared from *Prunus persica*, gen. prep. USNM-11590/Hodges; 1♂, Iwawakisan, 22. VII. 1952 (T. Kodama); 1♂, Iwawakisan, 3. V. 1950 (S. Issiki); 1♂, Iwawakisan, 16. X. 1954 (S. Issiki); 1♀, Ikeda, Kinki, Honshu, 31. VIII. 1965 (S. Issiki); 1♂, Mt. Ishizuchi, Shikoku, 20. VII. 1961 (M. Okada); 5♂, 4♀, Sindenbaru, Fukuoka, Kyushu, 11. XI. 1937 (R. W. Burrell); 3♂, 4♀, Shindenbaru, Fukuoka, 22-24. IV. 1939 (R. W. Burrell), bred on *Prunus persica*; 1♀, paratype, with a label indicated as "Kibune, Kyoto, Honshu, 1/6/18, USNM."

DISTRIBUTION. Japan (Honshu, Shikoku, Kyushu), Korea (Central ?), Russian Far East.

HOSTS. *Malus pumila* var. *dukissima* Koidz and *Prunus persica* (Linn.) Batsch (Rosaceae) have been reported from Japan (Issiki, 1957).

REMARKS. Female genitalia of the holotype of *kawamurai* Matsumura (Kumamoto, Kyushu, 29. V. 1907, K. Kawamura, gen. slide Glc-21/Kumata), which is deposited in the Entomological Institute, Hokkaido University, were compared with those of *tostella* Stringer. The synonymy is based on this comparison.

***Dichomeris aomoriensis* Park & Hodges, sp. nov.** (Figs. 9, 10, 77, Pl. A-6)

DIAGNOSIS. *Dichomeris aomoriensis* can be differentiated from any other related species of the group, especially in the shape of wings: ground color of forewing brownish gray, relatively broad, with obtuse apex; apex of hindwing also obtuse, while sharply pointed in other member of the group.

DESCRIPTION. Forewing length, 10.5-11.0 mm. Head, tegula, and thorax brownish gray. Antenna with sensory cilia on ventral surface of flagellum, dorsal surface with dark-brown rings. Ocellus very small. Second segment of the labial palpus more or less trapezoidal, dark brown outwardly with whitish-tipped scales along anterior margin; inner surface slightly paler than outer surface; 3rd segment strongly upturned, as long as 2nd, dark brown ventrally and whitish ochreous dorsally, apical 1/5 dark brown. Male with a pair of scale tufts arising from mesothoracic anepisternum. Forewing brownish gray, with a small discal stigma near middle and a short black streak posterad of discal spot at fold; subbasal, median and postmedian fascia weakly developed; 8-9 black spots along margin from 4/5 length of anterior margin to tornus; R_3 separated from R_{4+5} ; R_4 and R_5 stalked for 1/2 length; CuA_1 and CuA_2 short stalked. Hindwing orange gray; apex obtuse; cubital pecten present; R_s and M_1 stalked. Ventral surface of fore- and midlegs dark fuscous; hindtibia clothed with orange-gray scales at basal 2/3 length and fuscous beyond middle spurs.

Male genitalia (Figs. 9, 10): Uncus relatively small, with several long setae on ventral surface; distal margin rounded. Gnathos relatively small, stout. Valva evenly broad from base, exceeding apex of uncus. Ventral free lobe digitate, dilated apically. Vinculum rather convex, extremely broad laterally, with a basal protrusion near $1/5$ length; strong break at saccal region. Lobes of sicae asymmetrical, joined for short distance; mesial inner margin U-shaped, left lobe with strong denticles along the lateral margin; right one similar to the left one, shorter, slightly declined outwardly. Aedeagus stout, relatively short, basal region about $1/2$ length, with characteristic lateral lobes; dorsal lobe from zone heavily sclerotized distally, apex obtuse; cornutus about $2/3$ length of aedeagus.

Female genitalia (Fig. 77): Distal part of 8th tergum sclerotized, with rounded margin. Apophyses anteriores very short, not well developed. Antrum extremely broad, heavily sclerotized, distal margin almost straight, strongly break on anterior margin. Ductus bursae heavily sclerotized distally, with a irregular distal margin, a pair of membranous pouches developed anterolaterally, several characteristic sclerotized ridges and plates extending anteriorly, anterior $1/3$ membranous; ductus seminalis arising from anterior part of ductus bursae dorsally, with a heavily sclerotized ring near base. Corpus bursae with a semiovate protusion on left side posteriorly, anterior half membranous, with triangular sclerotized plates in junction; signum weakly sclerotized, platelike; accessory bursa arising from wall of signum.

TYPES. Holotype: ♂, Fujisaki, Aomori, Honshu, Japan, 24. VI. 1955 (H. Narita), gen prep. CIS-1348/ Park. Paratype: ♀, same locality as holotype, 26. VI. 1955 (H. Narita), gen. prep. CIS-1349/Park. Types to CIS, Korea, on indefinite loan from Japan.

DISTRIBUTION. Japan.

HOST. Unknown.

***Dichomeris symmetrica* Park & Hodges, sp. nov.** (Figs. 11, 12, 76, Pl. B-7)

DIAGNOSIS. *Dichomeris symmetrica* lacks cubital pecten in the hindwing and lacks spiculose secondary bursa in the ductus seminalis. Other structural characters are typical of the *oceanis* group.

DESCRIPTION. Forewing length, 6.0-6.2 mm. Head and thorax grayish brown. Ocellus present. Antenna with short sensory cilia ventrally in male. Second segment of labial palpus with triangular anteroventral scale tuft, with whitish-tipped scales on anterior margin. Male with a pair of long scale tufts arising from the mesothoracic anepisternum. Forewing pale grayish orange, fuscous scales irregularly scattered throughout; R_3 separated from R_{4+5} ; R_4 and R_5 stalked for $2/3$ length Hindwing pale gray; cubital pecten lacking; R_s and M_1 connate.

Male genitalia (Figs. 11, 12): Gnathos rather slender. Valva slightly exceeding apex

of the uncus; ventral free lobe stout, digitate. Vinculum evenly narrow, shorter than tegumen plus uncus; lacking lateral lobe. Lobes of sicae symmetrical, joined for short distance basally, posterior margin U-shaped mesially; lobes with four small teeth on ventral margin beyond middle. Aedeagus relatively stout, with heavily sclerotized, horn shaped cornutus.

Female genitalia (Fig. 76): Eighth segment weakly sclerotized with almost straight distal margin. Apophyses anteriores about 1/3 length of apophyses posteriores. Ductus bursae slightly shorter than length of corpus bursae, with many longitudinal sclerotized ridges on ventral surface and two heavily sclerotized, longitudinal bands on left side; ductus seminalis arising from posterior part of ductus bursae laterally, sclerotized ring absent. Corpus bursae membranous; signum absent; accessory bursa arising from anterior part of the corpus bursae.

TYPES. Holotype: ♂, Taitung Co., Orchid Isl. 4 km SW Hungta, Taiwan, 16-20. V. 1980 (D. Davis), gen. prep. USNM-87351/Park. Paratype: 1♀, same data for holotype, gen. prep. USNM-87352/Park. Types are in USNM.

DISTRIBUTION. Taiwan.

HOST. Unknown.

lushanae group

The species group is closely related to the *oceanis* group, but it is separated by the following characters: 2nd segment of labial palpus lacks an anteroventral scale tuft; male lacks a scale tuft arising from the mesothorax, hindwing without cubital pecten; male genitalia with gnathos rather short, vinculum with well-developed lateral lobes near base, sicae asymmetrical; aedeagus lacks lateral lobes. *Dichomeris lushanae*, *albula*, and *crambalaes* comprise this group. They are restricted to the Oriental Region.

Key to the species of the *lushanae* group

1. Forewing with a triangular costal blotch on anterior margin; hindwing with M_3 arising from the stalk of CuA_1 and CuA_2 *crambalaes*
- Forewing without such costal blotch on anterior margin; hindwing with M_3 and CuA_1 stalked 2
2. Forewing greatly elongated, longer than 9.5 mm, postmedian line not developed, with two discal spots; vinculum with relatively stout lateral lobes, aedeagus without cornutus *lushanae*
- Forewing length less than 8.0 mm, postmedian line well developed, incurved, with three discal spots; vinculum with very slender lateral lobes, aedeagus with heavily sclerotized short cornutus *albula*

Dichomeris lushanae Park & Hodges, sp. nov. (Figs. 15, 16, 99, Pl. B-8)

DIAGNOSIS. *D. lushana* is easily distinguished from the allied species by the following characters: 2nd segment of labial palpus thickened ventrally, with well-developed scale tufts dorsally, porrect anteriorly; forewing greatly elongate, with two distinct discal spots positioned longitudinally.

DESCRIPTION. Forewing length, 9.5-10.0 mm. Head brownish gray, paler laterally. Antenna with dense, short, sensory setae ventrally. Ocellus absent. Second segment of labial palpus (fig. 99) thickened ventrally, with scale tuft dorsally, porrect anteriorly, grayish brown on outer surface, apical edge pale yellowish; 3rd segment very slender, but slightly shorter than 2nd, light brown dorsally, grayish brown ventrally. Thorax and tegula brownish gray. Forewing elongate; anterior margin gently arched near 1/4 length, ground colour yellowish ochreous, pale brownish gray along anterior margin on both surface; a small stigma just beyond middle of cell and another large one near end of cell; apex rather sharply pointed; R_3 approximate at base of R_{4+5} , R_4 and R_5 stalked for 1/2 their length CuA_1 and CuA_2 stalked for about 1/2 length. Hindwing gray; termen slightly sinuate; lacking cubital pecten; a long hairpencil arising between veins Cu and M near base. Ventral surface of fore- and midlegs brownish gray; hindtibia yellowish ochreous on outer surface, pale grayish brown on ventral half before middle spur, with yellowish-white scales above. Female: unknown.

Male genitalia (Figs. 15, 16): Uncus relatively short, with rounded distal margin. Gnathos stout; culticula convex distally. Valva slightly exceeding apex of uncus; ventral free lobe slender. Vinculum with strong, large, heavily sclerotized basal lobe which extends outwardly and is densely serrated on mesial margin; saccal region almost straight. Sicae with three lobes, left one very short. Aedeagus very stout, dorsal lobe from zone sclerotized; internal lobe weak; lacking lateral lobes.

TYPES. Holotype: ♂, Taiwan, Taipei Co., Sozan, Taiwan, 3. VI. 1934 (S. Issiki), gen. prep. USNM-11561/Hodges. Paratypes: 1♀, Tainan Co., Kansirei, Taiwan, 19. X. 1934 (S. Issiki); 1♂, Nantou Co., Lushan, ca. 30 km E Wu-she, 1,000 m, 27-31. V. 1980 (D. Davis); 1♂, Nantou Co., Lienhauchi Exp. For. Stn. 15 km SW Puli 750 m, 22-26. V. 1980 (D. Davis); 1♂, Nantou Co., Mei-feng 30 km S Tayuling 2200 m, 1-8. VI. 1980 (D. Davis); 1♂, Kaohsiung Co., 10-11 km NE Chiashien, ca. 300 m, 3-8. VII. 1980 (D. Davis); 1♂, Hsinchu Co., Kuangwu For. Stn., 18-25. VIII. 1988, 2,000 m (J. Heppner & H. Wang). Types are in USNM and FSCA.

DISTRIBUTION. Taiwan.

HOST. Unknown.

Dichomeris albula Park & Hodges, sp. nov. (Figs. 17, 18, 83, Pl. B-9)

DIAGNOSIS. *D. albula* is separated from the allied species by the forewing which is not elongate, with inwardly curved whitish postmedian line.

DESCRIPTION. Forewing length, 7.0-7.5 mm. Head and thorax shining grayish brown. Antenna with pedicel elongate, dark brown dorsally; flagellum with conspicuous dark-brown rings from base, with dense sensory hairs ventrally. Second segment of labial palpus roughly scaled dorsally, brownish orange on outer surface, yellowish orange on inner surface; 3rd segment slender, slightly shorter than the 2nd, brownish orange ventrally, ochreous dorsally. Forewing elongate, slightly dilated distally, pale grayish brown, edged with brown on anterior margin; apex rather acute; a large, dark-brown, round stigma near middle and another slightly smaller one at end of cell, another inconspicuous one beneath the 1st large one on fold; postmedian line yellowish white, followed by a brown fascia which extends to the margin; dark-brown scales around apex and along termen; cilia grayish orange; R_3 separate, R_4 and R_5 stalked beyond $1/2$ their length; CuA_1 and CuA_2 stalked. Hindwing gray; apex well produced; cubital pecten lacking; R_5 and M_1 stalked near end of cell, M_3 and CuA_1 separate; cell open. Ventral surface of legs light brown; hindtibia pale yellowish orange covered with yellowish white hairlike scales above, the longer median spur about 2 x as long as the shorter one.

Male genitalia (Figs. 17, 18): Ganthos relatively small; culicula strongly convex distally. Valva exceeding apex of uncus; ventral free lobe with broad base. Basal lobe of vinculum very slender, bar shaped, gently bent distally; saccal region almost straight. Sicae with two lobes; left one slender, arising from base of right one; right one stout, but sharply narrowed to apex. Aedeagus free, with 6-7 shortly sclerotized cornuti; lateral lobe lacking.

Female genitalia (Fig. 83): Distal margin of 8th tergum broadly convex, sclerotized. Apophyses anteriores triangularly expanded, about $1/3$ length as long as apophyses posteriores. Antrum very broad. Ostium with a W-shaped, weakly sclerotized plate laterally, bearing fine microtrichia. Ductus bursae not well defined from corpus bursae, with several heavily sclerotized longitudinal ridges, extending to corpus bursae; ductus seminalis arising from a membranous lobe on left side, connecting with an ovate heavily sclerotized ring at base; left side of corpus bursae with numerous fine spicules; accessory bursae arising from wall of signum; signum small, V-shaped.

TYPE. Holotype: ♂, Taipei Co., Wulai, 200 m, Taiwan, 17-19. VI. 1985 (J. Heppner & H. Wang). Paratypes: 2♂, 1♀, same data as holotype, gen. prep. USNM-87443/Park (♀); 1♂, Pingtung Co., Kenting Park, 255 m, Taiwan, 23-28. VI. 1989 (J. Heppner & H. Wang), gen. prep. USNM-87442/Park. Types are in FSCA.

DISTRIBUTION. Taiwan.

HOST. Unknown.

***Dichomeris crambalaeas* (Meyrick), comb. nov.** (Figs. 19, 20, 21, Pl. B-10)

Trichotaphe crambalaeas Meyrick, 1913, Jour. Bombay Nat. Hist. Soc. 22: 178; Gaede, 1937: 466; Clarke, 1969: 504, pl. 252, fig. 2. (Lectotype: ♂, Khasi Hills, Assam, BMNH-8447).

DIAGNOSIS. The hindwing of *crambalaeas* has M_3 arising from the stalk CuA_1 and CuA_2 (fig. 21). It is an unusual state among *Dichomeris* species.

DESCRIPTION. Forewing length, 9.5-10.5 mm. Antenna of male with long sensory setae on ventral surface. Second segment of labial palpus thickened with appressed scales ventrally and with well-developed scale tuft dorsally. Ocellus present. Male lacking scale tuft arising from mesothoracic anepisternum. Forewing with R_3 separated from R_{4+5} ; CuA_1 and CuA_2 short stalked. Hindwing without cubital pecten; Rs and M_1 stalked; M_3 out of stalk CuA_1 and CuA_2 . Female: unknown.

Male genitalia (Figs. 19, 20): Uncus narrowed toward apex, with 5-8 strong setae along lateral margins. Valva greatly exceeding apex of uncus, with dilated distally; ventral free lobe slender, about 1/4 length of valva. Vinculum with strong, large lateral lobe arising at 1/3 length; a weakly sclerotized, slender lobe arising at 2/3 length of right side; saccal region almost straight. Sicae asymmetrical, left one about 2/3 length of right one, with 3-4 denticles on ventral margin. Aedeagus stout, with three different sized lateral arms; cornutus long, about same length as aedeagus.

MATERIAL EXAMINED. <Taiwan>: 1 ♂, Taichung Co., Hassenzan, 4. VI. 1942 (S. Issiki); 2 ♂, Nantou Co, Mei-feng, 30 km S Tayuling, 2,200 m, 1-8. VI. 1980 (D. Davis), gen. prep. USNM-11618/ Hodges and 87356/Park.

DISTRIBUTION. Taiwan.

HOST. Unknown.

***pyrroschista* group**

Dichomeris pyrroschista is the only member of the group. It is a sister group of the *oceanis* group and can be separated by the following characters: ocellus absent, 2nd segment of labial palpus thickened with scaletuft dorsally

***Dichomeris pyrroschista* (Meyrick), comb. nov.** (Figs. 58, 59, 91, 102, Pl. B-11)

Brachmia pyrroschista Meyrick, 1934, Exot. Microlep., 4: 515; Clarke, 1969: 373, pl. 185, figs. 3. (Type: ♀, Mt. Omei, W China, 4,000 feet, BMNH-8968).

DESCRIPTION. Forewing length, 7.0-9.0 mm. Antenna of male with sensory cilia on ventral surface of flagellum. Ocellus absent. Male with a pair of long scale tufts arising from mesothoracic anepisternum. 2nd segment of labial palpus (fig. 102) thickened ventrally, with scale tuft dorsally; 3rd segment strongly upturned, slender,

longer than 2nd. Forewing light orange, with reddish-orange streaks along veins; R_3 connate with R_4+R_5 ; CuA_1 and CuA_2 short stalked. Hindwing with cubital pecten.

Male genitalia (Figs. 58, 59): Gnathos very strong, stout. Valva greatly exceeding apex of uncus; ventral free lobe very short. Vinculum lacking lateral lobes. Lobes of sicae joined for short distance, left lobe slightly shorter than right. Aedeagus relatively long; dorsal lobe heavily sclerotized with broadened distal portion; internal lobe very slender.

Female genitalia (Fig. 92): A semicircular plate developed posterad of 8th tergum. Apophyses anteriores about 1/3 length of apophyses posteriores. Antrum very broad, weakly sclerotized. Ductus bursae very short, well defined; 2-3 sclerotized plates in juncture with corpus bursae; ductus seminalis arising from right side of corpus bursae posteriorly, bearing a sclerotized ring near base. Corpus bursae with dense spicules on inner surface of anterior 1/3; accessory bursa arising from anterior end.

MATERIAL EXAMINED. <Taiwan>: 1♂, Pintung Co., Kirai, 2. VI. 1943 (S. Issiki), gen. prep. USNM-11651/Hodges; 1♀, Taichung Co., Baibara, 24. III. 1943 (S. Issiki), gen. prep. USNM-11652/Hodges; 2♂, 1♀, Baibara, 27. VI. 1943 (S. Issiki); 1♂, Taipei Co., Taihoku, 9. IV. 1935 (S. Issiki); 1♂, Nantou Co., Rantaisan, 16. V. 1933 (S. Issiki); 2♂, Taoyan Co., Rarasan, 27-28. VI. 1943 (S. Issiki); 1♀, Taipei Co., Taihoku, 21. IV. 1943 (S. Issiki); 1♀, Taihoku, 17. VI. 1933 (S. Issiki).

DISTRIBUTION. Taiwan, China (West).

HOST. Unknown.

REMARK. Comparison with female genitalia of the type showed the Taiwanese specimen to be conspecific with the type. The association of the male is based on similarity of habitus, color pattern, and geographic origin.

lespedezae group

D. lespedezae and *quercicola* comprise this group. It is very close to *oceanis* or *lushanae* group, and placed between *harmonias* or *oceanis* and *acuminata* group. They are distributed in the Palearctic region.

Dichomeris lespedezae Park (Fig. 100, Pl. B-12)

Dichomeris lespedezae Park, 1994, Ins. Koreana 11: 4-6, figs. 1a-c.

DIAGNOSIS. This species can be recognized by the following characters: 2nd segment of labial palpus (fig. 100) is expanded into rectangle instead of triangle as in *harmonias*, and the postmedian fascia of forewing is narrow and incurved.

DESCRIPTION. Forewing length, 6.8-7.2mm. Superficially very close to *harmonias*, and has often been misidentified as *harmonias*.

Male and female genitalia. See Park, 1994: figs. 1a-c, for details of the description.

MATERIAL EXAMINED. <Japan>: 1♂, 24. VI. 1960, Sakai, Osaka, Honshu, Japan (M. Okada)-a paratype of the species.

DISTRIBUTION. Korea (Central), Japan (Honshu).

HOST. A specimen from Japan (Sakai, Osaka, 24. VI. 1960) indicates that it was reared from leaves of *Lespedeza* sp. (Fagaceae).

Dichomeris quercicola Meyrick (Fig. 101, Pl. C-13)

Dichomeris quercicola Meyrick, 1921, Exot. Microl. 2: 433; Meyrick, 1925: 176; Caradja and Meyrick, 1935: 72; Gaede, 1937: 443; Issiki, 1957: 42, pl. 6, fig. 5; Clarke, 1969: 39, pl. 18, fig. 5; Moriuti, 1982: 1/284, 2/215, pl. 13, fig. 32. (Type: ♀, Panjab, Kangra, in BMNH, abdomen lacking).

DESCRIPTION. Forewing length, 6.0-6.5 mm. Because the lectotype lacks an abdomen, no comparison of genital characters has been made with the type specimen or specimens from the type locality. The identification for specimens from Japan is based on superficial characters by previous authors (Issiki, 1957; Moriuti, 1982; Park, 1994).

Male and female genitalia: See Park (1994: figs. 3a-c).

MATERIAL EXAMINED. <Japan>: 1♀, Osaka, Honshu, E. VII. 1932 (S. Issiki); 1♂, 1♀, Sakai, Kinki, Osaka, 31. VIII. 1954 (A. Mutuura), gen. prep. USNM-11556/Hodges; 1♀, Mukogun, Honshu, VIII. 1937 (S. Issiki); 1?, Osaka, 24. VII. 1932 (Pundjab).

DISTRIBUTION. Japan (Honshu), Korea (South), China, Russian Far East, India.

HOSTS. *Lespedeza cyrtobotrya* Miq. (Fabaceae) was reported from Japan and *Quercus* sp. (Fagaceae) was reported from India.

acuminata group

Eleven species of *Dichomeris* (*acuminata*, *ochthophora*, *ferruginosa*, *ochreata*, *summata*, *malacodes*, *horoglypta*, *mitteri*, *leptosaris*, *orientis*, and *davisi*) comprise the *acuminata* group in Japan and Taiwan. An American species *nenia* Hodges is a member of this group. The species occur in the subtropical region and some are distributed in the eastern Palearctic. Only *acuminata* is widely spread in the world. The species group is recognized by the following characters: forewing elongate, usually less than 8.5 mm; 2nd segment of the labial palpus with well-developed scale tuft ventrally; male usually with a pair of scale tufts arising from mesothoracic anepisternum. However, some of them (*leptosaris*, *horoglypta*, *mitteri*, *orientis*, *davisi*, and *malacodes*) lack such a scale tuft, and the sicae fuse basally; the cubital pecten is present in the hindwing. In the male genitalia, sicae arising from a common base, usually with slender lobes, sometimes fused with each other for more than 1/3 length, symmetrical or asymmetrical; aedeagus lacking lateral lobes, cornutus present or

absent. Female genitalia are not well defined for this species group.

Key to the species based on external characters

1. Second segment of labial palpus with elongated triangular scale tuft directed anteriorly; male with a pair of scale tufts from mesothoracic anepisternum (except *leptosaris*) 2
 - Second segment of labial palpus with triangular or rectangular scale tuft directed ventrally; male lacks such scale tufts from mesothoracic anepisternum 7
2. Third segment of labial palpus short, less than 1/2 as long as 2nd, rather porrect 3
 - Third segment of labial palpus about equal or slightly shorter than the length of 2nd, upturned 4
3. Forewing length more than 7.0 mm; hindwing pale gray *ochreatea*
 - Forewing length less than 6.0 mm; hindwing gray *ferruginosa*
4. Third segment of labial palpus strongly upturned, about equal length to 2nd . . . 5
 - Third segment of labial palpus slightly upturned, shorter than 2nd 6
5. Forewing yellowish orange, with dark-brown fascia along anterior margin *summata*
 - Forewing reddish ochreous, without such fascia along anterior margin *leptosaris*
6. Forewing length more than 6.5 mm, with well-developed fascia along anterior and posterior margin *ochthophora*
 - Forewing length less than 6.0 mm, without such fascia along margins *acuminata*
7. Second segment of labial palpus rectangular with loose scale tuft 8
 - Second segment of labial palpus triangular 10
8. Forewing rather broad, with fuscous S-shaped fascia along posterior margin; hindwing with rather obtuse apex *horoglypta*
 - Forewing lanceolate, without such fascia along posterior margin; hindwing with sharply pointed apex 9
9. Forewing almost parallel, with well-developed yellowish postmedian line *davisi*
 - Forewing narrower distally, without such postmedian line *orientis*
10. Forewing length less than 5.3 mm, with 3 dark-brown discal spots *malacodes*
 - Forewing length more than 6.5 mm, usually discal spot not represented . . . *mitteri*

Key to the species based on the male genitalia

1. Lobes of sicae joined for short distance or fused basally, lacking lateral projections 2

- Lobes of sicae arising separately, with lateral projections *malacodes*
- 2. Sicae fused basally 3
- Sicae joined for short distance, not fused basally 7
- 3. Saccal region produced anteriorly; cornutus heavily sclerotized, horn shaped
. *acuminata*
- Saccal region emarginate; cornutus absent or weakly developed 4
- 4. Aedeagus very stout; lobes of sicae separated beyond middle *ochthophora*
- Aedeagus rather slender; lobes of sicae separated near or before middle 5
- 5. Lobes of sicae rather widely separated; appendix appendicular arising near base of
valva very slender *ochreatea*
- Lobes of sicae closely parallel to each other; appendix appendicular arising near
base of valva moderate laterally 6
- 6. Gnathos slender; cornutus very small *ferruginosa*
- Gnathos very stout; cornutus absent *summata*
- 7. Lobes of sicae symmetrical or almost asymmetrical 8
- Lobes of sicae asymmetrical 9
- 8. Lobes of sicae distinctly separated beyond base, gnathos long (fig. 23), aedeagus
without cornutus (fig. 24) *leptosaris*
- Lobes of sicae slightly separated beyond base, gnathos short (fig. 27), aedeagus
with cornutus (fig. 28) *orientis*
- 9. Aedeagus with a strong cornutus (fig. 30) *horoglypta*
- Aedeagus lacking cornutus or with very small cornutus (fig. 30) 10
- 10. Left lobe of sicae nearly reaching apex of tegumen, gnathos gently curved (fig. 29)
. *mitteri*
- Left lobe of sicae shorter, reaching 1/2 length of tegumen, gnathos strongly curved
(fig. 25) *davisi*

Dichomeris acuminata (Staudinger) (Pl. C-14)

Mesophleps(?) acuminatus Staudinger, 1876, Ent. Ztg. Stett., 37: 148. (Type: male, Valdesi, Sicily, in BMNH).

Hyposolophus ianthes Meyrick, 1887: 273 (Type: St. Denis, Reunion BMNH).

Dichomeris ianthes; Gaede, 1937: 434; Issiki, 1957: 42, pl. 6, fig. 176; Clarke, 1969: 27, pl. 13, fig. 3; Saito, 1969: 114, fig. 220; Moriuti, 1982: 1/284, 2/215, pl. 13, fig. 33.

Ypsolophus rusticus Walsingham, 1891: 525 (Type: St. Vincent, W. Indies, in BMNH).

Ypsolophus lotellus Constant, 1893: 398 (Type: Alluvirons du Var, France, in MNHP).

Ypsolophus ammoxanthus Meyrick, 1904: 430 (Type: Duaringa, Queensland, in BMNH).

Ypsolophus ochrophanes Meyrick, 1907: 981 (Type: Ambulangoda, Ceylon, in BMNH).

Dichomeris acuminatus; Zimmermann, 1978: 1706, figs. 1262-1267.

Dichomeris acuminata; Hodges, 1986: 38, pl. 4, figs. 1, text fig. 9.

DIAGNOSIS. *Dichomeris acuminata* is characterized by the presence of a scale tuft from the mesothoracic anepisternum, saccal region produced, and presence of heavily sclerotized, horn-shaped cornutus. Comparison with the male genitalia of Japanese and American specimens reveals that the cornutus of the Taiwanese specimen is more slender and longer than 1/2 length of aedeagus, but this is considered to be infra-specific variation.

DESCRIPTION. Forewing length, 5.0-6.2 mm. This species was recently redescribed in detail by Hodges (1986: 38-40).

Male and female genitalia. See Zimmerman (1978: figs. 1265 & 1266) and Hodges (1986: 38, text, fig. 9). Genitalia of Japanese specimens were compared with gen. prep. BMNH-14203 and BMNH-14204/Clarke of the lectotype specimen of *ochrophanes* (Meyrick).

MATERIAL EXAMINED. <Taiwan>: 1 ♂, Taipei Co., Sirin, 7. X. 1933 (S. Issiki), larvae spun leaves of *Indigofera* sp.; 1 ♀, Sirin, 17. X. 1933 (S. Issiki), gen. prep. USNM-11580/Hodges; 1 ♂, Taipei Co., Taihoku, 7. V. 1933 (S. Issiki); 1 ♂, Taichung Co., Chingshan, 1,100 m, 8-11. V. 1989 (J. Heppner & H. Wang). <Japan>: 1 ♀, Osaka, Honshu, VII. 1932 (S. Issiki), 1 ♀, same locality, 20. III. 1934 (S. Issiki); 1 ♂, Heisan, Kinki, Honshu, 22. IX. 1949 (S. Issiki); 1 ♂, Ikeda, Kinki, Honshu, 13. X. 1950 (S. Issiki); 1 ♂, same locality, 1. IX. 1950 (S. Issiki), 1 ♀, same locality, 19. IX. 1950 (S. Issiki), 1 ♀, same locality, 4. X. 1975 (S. Issiki); 1 ♂, same locality, 12. VII. 1950 (S. Issiki); 1 ♂, Ito Izo, Tokai, Honshu, 20. X. 1974 (S. Issiki), gen. prep. USNM-11578/Hodges, 1?, same locality, 10. X. 1974 (S. Issiki); 1 ♀, same locality, 1. IX. 1976 (S. Issiki); 4 ♂, 2 ♀, Yokosuka, Funakoshi, Honshu, 9-11. IX. 1953 (H. Inoue).

HOSTS. *Indigofera pseudotinctoria* Matsumura, *Trifolium pratense* Linn., *Medicago sativa* Linn., and *Cyamopsis* sp. have been reported for Japan (Saito, 1969; Moriuti, 1982); *Sesbania* species and hairy indigo from N. America (Hodges, 1986); *Medicago sativa* Linn., *Cyamopsis* sp., *Desmodium gyroides* Candolle, *Medicago* sp., *Cajanus cajan* (Linn.), *Sesbania sericea* (Willdenow) and *Tephrosia* sp. are hosts in India (Fletcher, 1920) and Hawaii (Zimmerman, 1978). All hosts are Fagaceae.

DISTRIBUTION. Taiwan (new record), Japan (Honshu), widely distributed in Oriental and Australian regions, Hawaii and N. America.

REMARK. *Dichomeris acuminata* has been known as *ianthes* Meyrick by previous authors (Issiki, 1957; Moriuti, 1982); however, *ianthes* was treated as a junior synonym of *acuminata* by Zimmerman (1978). The type species of *ianthes* (Meyrick) is lost. Clarke (1969) accepted *ochrophanes* (Meyrick) as its junior synonym and designated a lectotype based on a syntype specimen of *ochrophanes*.

Dichomeris ferruginosa Meyrick (Figs. 22, 23, Pl. c-15)

Dichomeris ferruginosa Meyrick, 1913, Journ. Bombay Nat. Hist. Soc., 22: 173; Meyrick, 1925: 175, 1934: 512; Gaede, 1937: 433; Clarke, 1969: (7) 23, pl. 11, figs. 4a-b; Moriuti, 1982: 1/284, 2/214, pl. 13, fig. 30. (Type: ♂, Khasis, BMNH-8579).

DIAGNOSIS. This species is very similar to *mitteri* superficially, but it can be easily separated by the 2nd segment of the labial palpus, which has a long projecting apical tuft that is covered with very long expansible whitish scales on the inner surface. Comparison of the male genitalia of a Japanese specimen with one from the type locality, Assam, India (gen. prep. USNM-3471), showed no significant differences, except the uncus is slightly smaller in the Japanese specimen.

DESCRIPTION. Forewing length, 5.5-6.0 mm. Clarke (1969) designated a lectotype, based on a male from Khasis. Female. Unknown.

Male genitalia (Figs. 22, 23): Male genitalia are very similar to those of *ochthophora*, but can be differentiated from them as follows: uncus relatively long; sicae much more slender, fused less than 1/2 length; aedeagus much smaller, slender, dorsal lobe of aedeagus with a pointed apex; numerous minute spicules in vesica; cornutus small, spinelike.

MATERIAL EXAMINED. <Taiwan>: 1♂, Taipei Co., Taihoku, 8. V. 1935 (S. Issiki); 1♂, same locality, 5. IX. 1932 (S. Issiki). **Additional specimens examined:** 1♂, indicated as "Khasi Hills, VIII. 1906," "Gen. slide by SBA, USNM-3471," "Comp. with type *Dichomeris ferruginosa* Meyr., Det. J. F. G. C. 1948," "*Dichomeris ferruginosa* Meyrick, Det. Meyrick in Meyrick Coll.," "Meyrick Coll. B.M. 1938-290." <Japan>: 1♂, Iwawakisan, Kinki, Honshu, 17. VI. 1950 (A. Mutuura), gen. prep. USNM-87337/Park; 1♀, Satamisaki, Honshu, 20. V. 1952 (S. Issiki), 1♂, Takao-san, Honshu, 15. VII. 1965 (H. Inoue).

DISTRIBUTION. Taiwan, Japan (Honshu), India (Assam).

HOST. *Sesbania grandiflora* Poir. (Fagaceae) (Meyrick, 1934)).

Dichomeris ochthophora Meyrick (Figs. 24, 25, 79, Pl. C-16)

Dichomeris ochthophora Meyrick, 1936, Exot. Microlep., 5: 46; Gaede, 1937: 560; Issiki, 1957: 42, pl. 6, fig. 179; Clarke, 1969: (7) 35, pl. 17, fig. 1; Moriuti, 1982: 1/283, 2/214, pl. 13, fig. 28. (Lectotype: ♀, Taihoku, Taiwan, BMNH-8592).

DIAGNOSIS. *Dichomeris ochthophora* can be separated from *ferruginosa* by dark-fuscous streaks along costa of the forewing.

DESCRIPTION. Forewing length, 6.5-8.5 mm. Ground color of the forewing yellowish ochreous, well-developed, dark-fuscous streaks along anterior margin and posterior margin. Clarke (1969) designated a female lectotype of *ochthophora* Meyrick, based on a syntype specimen from Taiwan.

Male genitalia (Figs. 24, 25): Valva slightly exceeding apex of the uncus; ventral

free lobe digitate, relatively stout. Vinculum shorter than length of tegumen plus uncus; lacking lateral lobes; saccal region slightly excavated. Sicae symmetrical, parallel, arising from a common base, fused for more than 1/2 length. Aedeagus lacking lateral lobes, internal sclerotized lobe weakly developed, numerous strong spicules in vesica.

Female genitalia (Fig. 79): Apophyses anteriores long, about 1/2 length of apophyses posteriores. Dorsodistal part of 8th segment heavily sclerotized, with round distal margin. Antrum weakly sclerotized on distal half. Ductus bursae short, not clearly distinguished from the corpus bursae; ductus seminalis arising from dorsodistal part of ductus bursae. Corpus bursae long, distal 2/3 sclerotized with numerous wrinkles on dorsolateral wall, anterior 1/3 membranous with two sclerotized bands, which are heavily twisted; signum very weak, small, crescent shaped; accessory bursa arising laterally from near area of signum at anterior 1/4 of the bursae.

MATERIAL EXAMINED. <Taiwan>: 1♂, 1♀, Taipei Co., Taihoku, 1. VI. 1935 (I. Issiki); 1♂, same locality, 17. XII. 1934 (S. Issiki); 1♂, Kaohsiung Co. 10-11 Km NE Chiahisien, ca. 300m, 3-8 VII. 1980 (D. Davis); 1♀, Nantou Co., Sunmoon Lake, 760m, 20-25 VI. 1980 (D. Davis); 1♂, Taipei Co., Taihoku, 5. IX. 1932 (S. Issiki); 1♂, Taipei Co., Taihoku, 8. V. 1935 (S. Issiki); 1♂, indicated as "Taihoku, Formosa, V. 35," "comp. with type *Dichomeris ochthophora* Meyr. Det. J. F. G. C. 1948," "*Dichomeris ochthophora* Meyr. Meyrick det. in Meyrick Coll.," "Meyrick Coll. B. M. 1938-290." <Japan>: 1♂, Kii, Osima, Kinki, Honshu, 17. X. 1952 (S. Issiki); 1♀, Kii, Osima, Kinki, 27. X. 1952 (S. Issiki); 1♀, Kii, Osima, 9. IX. 1952; 1♀, Kii, Osima, 11. VIII. 1955 (S. Issiki), gen. prep. USNM-11572/Hodges; 1♂, Kii, Osima, 2. VIII. 1955 (S. Issiki), gen. prep. USNM-11570/Hodges; 7♂, 8♀, Kinki, Honshu, 8-14. VIII. 1955 (S. Issiki); 1♂, Kinki, 28. V. 1956 (S. Issiki); 1?, Kii, Osima, 18. VIII. 1957 (S. Issiki); 1♂, Satamisaki, Kyushu, 21. V. 1952 (S. Issiki); 3♂, 2♀, Satamisaki, 13. X. 1955 (S. Issiki), gen. prep. USNM-11573 and 11574/Hodges.

DISTRIBUTION. Japan (Honshu, Kyushu), Taiwan, India (Assam).

HOSTS. *Eriobotrya japonica* (Thunberg) Lindle and *Rhaphileps umbellata* (Thunb.) Makino (Rosaceae) are known from Japan. *Photinia lucida* (Decaisne) Schneider (Rosaceae) is known from Taiwan (Meyrick, 1936).

REMARKS. This species is quite common in Japan, especially in Honshu and Kyushu, but it is not found in the Korean peninsula. Some of the Japanese specimens from Kyushu in the southern part of the country, show slight differences in the wing pattern: the forewing is more elongate with forewing length of 8.0-8.5 mm, fuscous streaks along the anterior margin and dorsum are not clearly developed, with a more distinct stigmata in the cell and numerous stigma, which looklike streaks along the termen. However, no significant differences were found in the male and female genitalia.

***Dichomeris ochreata* Park & Hodges, sp. nov.** (Figs. 26, 27, 103, Pl. c-17)

DIAGNOSIS. *Dichomeris ochreata* can be distinguished from others in the *acuminata* group by the emarginate saccal region and the extremely long appendix appendicular (fig. 26).

DESCRIPTION. Forewing length, 7.2 mm. Head shiny orange white on the vertex, with pale brownish-orange scales posteriorly; frons with shining, creamy-white scales. Antenna with elongate pedicel, as long as the diameter of eye, flagellum with dark-brown rings dorsally, with long sensory cilia ventrally. Ocellus absent. Second segment of labial palpus elongate, porrect, with long yellowish-white scales on inner surface, brown on outer surface; 3rd segment short, less than 1/3 length of the 2nd, porrect, almost half of length concealed in scales arising from apex of the 2nd segment. Tegula and thorax brownish orange. Forewing elongate, grayish orange; anterior margin almost straight, with short dark-brown strigulae along margin before 3/4 length; discal spots at 2/3 length and the end of cell, a short dark-brown streak posterad cell; brownish-orange scales irregularly scattered, especially on the anterior half posterad of 2/3 length of the wing; fuscous-brown patch along termen; termen strongly oblique; R_3 separated from R_{4+5} ; R_4 and R_5 stalked for about 2/3 length; CuA_1 and CuA_2 short stalked. Hindwing gray, apex strongly produced; R_s and M_1 approximate; cell weakly closed. Ventral surface of legs pale gray; hindtibia slender, yellowish white throughout, with short, whitish scales above. Female: unknown.

Male genitalia (Figs. 26, 27): Uncus relatively large, long, with a pair of strong, long setae on dorsal surface. Gnathos slightly dilated beyond 2/3 length, with a pointed apex; culcitula strongly convex distally. Valva attaining apex of the uncus, dilated near 3/4 length on posterior margin; ventral free lobe short, digitate. Appendix appendicular bearing long hairpencils arising near base of the valva extremely elongated, with sharply pointed apex. Vinculum lacking lateral lobe; slightly emarginated in saccal region. Sicae fused for about 1/2 length, then separated, the right lobe slightly longer than the left. Aedeagus lacking lateral lobes; dorsal lobe broad, weakly sclerotized; internal lobe weakly developed; numerous strong spicules in the vesica; lacking cornutus.

TYPE. Holotype: ♂, Nantou Co. Mei-feng, 30 km S Tayuling, 2,200 m, Taiwan, 1-8 .VI. 11980 (D. Davis), gen. prep. USNM-87359/Park. Type is in USNM.

DISTRIBUTION. Taiwan.

HOST. Unknown.

***Dichomeris summata* Meyrick** (Figs. 28, 29, Pl. C-18)

Dichomeris summata Meyrick, 1913, Journ. Bombay Nat. Hist. Soc., 22: 172; Meyrick, 1925: 175; Gaede, 1937: 443; Clarke, 1969: (7)40, pl. 20, figs. 1a-c. (Type: ♀, Khasis, BMNH-8578).

DIAGNOSIS. *Dichomeris summata* can be recognized by the combination of a scale tuft arising on the mesothoracic anepisternum, concave saccal region, and gnathos very stout for basal 2/3 then tapering to slender apex.

DESCRIPTION. Forewing length, 7.0-7.2 mm. Forewing elongate, fuscous-brown fascia developed along anterior margin, with two distinct discal spots at middle and at end of the cell; apex sharply pointed. 2nd segment of the labial palpus elongate, with long, yellowish-white scales on inner surface; 3rd segment shorter than 1/2 length of the 2nd. Female: no specimen was available to examine from Taiwan or Japan.

Male genitalia (Figs. 28, 29): Gnathos very stout, long, with sharply pointed apex; culcitula relatively small. Valva approximately attaining apex of uncus; ventral free lobe rather small, digitate. Vinculum uniformly slender, lacking lateral lobes; saccal region slightly concave. Sicae symmetrical, lobes fused for less than 1/2 length, parallel, shorter than those of *mitteri* and *ochthophora*. Aedeagus simple, slender, lacking lateral lobes; basal part about 1/2 length of entire aedeagus. Female genitalia. See Clarke (1969, figs. 1a, 1b).

MATERIAL EXAMINED. <Taiwan>: 1♂, no date on label, Taiwan (S. Issiki), gen. prep. USNM-11565/Hodges; 1♂ (abdomen lacking), Haulien Co., Raisya, 24. XI. 1934 (S. Issiki); 1♂, Nantou Co., Tayuling, 2500m, 9-18. VI. 1980 (D. Davis), gen. prep. USNM-87339/Park. **Additional specimen examined:** 1♀, indicated as "Khasi Hills, Assam, VI. 1906," "gen. prep. USNM-3477/Hodges," "Comp. with type, *Dichomeris summata* Meyrick, Det. J. F. G. C. 1948," "*Dichomeris summata* Meyr. 9/2, E. Meyrick det. in Meyrick Coll.," "Meyrick Coll. B.M. 1938-290."

DISTRIBUTION. Taiwan (new record), India (Khasis).

HOST. Unknown.

REMARKS. A female paralectotype from the type locality, Khasi Hills, India, which is in the USNM, is examined.

Dichomeris leptosaris Meyrick (Figs. 30, 31, 78, 104, Pl. D-19)

Dichomeris leptosaris Meyrick, 1932, Exot. Microl., 4: 202; Gaede, 1937: 436; Issiki, 1957: 42, pl. 6, fig. 180; Clarke, 1969: (7)28, pl. 14, fig. 3; Moriuti, 1982: 1/284, 2/214, pl. 13, fig. 29. (Type: ♀, Hokkaido, Japan, BMNH-8562).

DIAGNOSIS. *Dichomeris leptosaris* is extremely close to *acuminata* in superficial appearance, but the ground color of the forewing is much more reddish ochreous than for *acuminata*, and *leptosaris* lacks a scale tuft on the mesothoracic anepisternum that is present in *acuminata*.

DESCRIPTION. Forewing length, 7.0-7.2 mm.

Male genitalia (Figs. 30, 31): Uncus emarginate triangularly on anterior margin. Gnathos long, gently bent. Valva short, not reaching apex of uncus; sacculus extends

to about 4/5 length of valva; ventral free lobe digitate, slender. Vinculum narrow, lacking lateral lobes; saccal region strongly concave. Lobes of sicae symmetrical, slender, parallel, arising from the sclerotized broad base, weakly serrated along lateral margin. Aedeagus rather simple, slightly longer than length of tegumen plus uncus, with an acute apex; lacking lateral lobes and cornutus.

Female genitalia (Fig. 78): Apophyses posteriores about 3 x length of apophyses anteriores. Ductus bursae long, anterior half sclerotized, with a triangularly sclerotized fold at middle, not discrete from corpus bursae; ductus seminalis arising from the sclerotized fold laterally. Corpus bursae relatively small, membranous; accessory bursa arising from the ventral wall posteriorly; lacking signum.

MATERIAL EXAMINED. <Japan>: 1♂, Mt. Teine, Hokkaido, 16. IX. 1917 (S. Issiki); 1♂, 1♀, Sinano, Honshu, 20. VII. 1955 (T. Yasuda), gen. prep. USNM-11554/Hodges; 1♀, 16. VII. 1922 (S. Issiki), gen. prep. USNM-11555/Hodges; 1♀, Yuje, Tohoku, ?, 20. VII. 1939 (S. Issiki).

DISTRIBUTION. Japan (Hokkaido, Honshu; endemic).

HOST. *Corylus heterophylla* var. *thunbergi* Blume and *C. sieboldiana* Blume (Betulaceae), and *Quercus mongolica* var. *grosseserrata* (Blume) Rehder & Wilson (Fagaceae) are reported from Japan (Moriuti, 1982).

REMARKS. This species was described from Hokkaido, Japan, based on a single female, which was erroneously indicated as male in the original description. *D. consertella* Christoph, 1881, which was described from Vladivostock, seems to be a related species, according to its original description. However, we have not been able to examine the type of *consertella* Christoph.

Dichomeris mitteri Park (Pl. D-20)

Dichomeris mitteri Park, 1994, Ins. Koreana 11: 17-19, figs. 8a-c.

DIAGNOSIS. *Dichomeris mitteri* differs from the closely similar *horoglypta* by lacking a cornutus in male genitalia, whereas *horoglypta* has a strong conutus.

DESCRIPTION. Forewing length, 6.5-6.7 mm. For detailed description, see Park, 1994: 17-19. Male and female genitalia. For details, see Park, 1994: 18-19, figs. 8a-c. The male genitalia are very similar to those of *horoglypta*.

MATERIAL EXAMINED. <Japan> 1♂, Iwawakisan, Kinki, Honshu, Japan, 21. VII. 1949 (S. Issiki), gen. prep. USNM-11583/Hodges; 1♀, Isuduti-yama, Shikoku, Kyushu, Japan, 8. VI. 1950 (S. Issiki). Above two specimens are paratypes of the species.

DISTRIBUTION. Japan (Honshu, Kyushu), Korea (Central).

HOST. Unknown.

Dichomeris davis Park & Hodges, sp. nov. (Figs. 32, 33, 80, 105, Pl. D-21)

DIAGNOSIS. *Dichomeris davis* is closely similar to *intensa* Meyrick, 1913 which was described from Maskeliya, Ceylon, in superficial appearance. Generally it has relatively broader forewings, instead of narrower near apex in *intensa*. The submarginal line is clearly represented, and edged with yellowish orange outwardly; it is almost straight and approaches the tornus vertically. In the male genitalia, the lobes of the sicae in *davis* are separated from near the base, instead of being fused for about 1/2 their length in *intensa*; and the valva does not reach the apex of the uncus.

DESCRIPTION. Forewing length, 6.2-6.7 mm. Head grayish brown; frons pale grayish orange. Antenna with elongate pedicel; flagellum with short sensory cilia beneath. Second segment of labial palpus (fig. 105) almost quadrate, dark brown on outer surface, pale gray on inner surface; 3rd segment slender, about same length as 2nd. Tegula dark brown. Thorax grayish brown. Ocellus present. Forewing brownish orange, with dark-brown scales on basal region; dark-brown costal blotch elongate and meeting postmedian line; postmedian line consisting of three narrow lines, beyond them yellowish white edged by dark-brown patch; yellowish-white line extending from before apex to tornus; cilia brownish orange with curved dark line below middle, and dark fuscous near tornus; R_3 stalked with R_{4+5} , at base; R_4 and R_5 stalked for 2/3 length; CuA_1 and CuA_2 short stalked. Hindwing dark gray; apex sharply pointed; R_5 and M_1 separated. Ventral surface of fore- and midlegs dark fuscous, and hindleg shiny creamy white on ventral surface; hindtibia dark fuscous throughout. Ventral surface of abdomen yellowish white, with 5-6 dark-fuscous stripes.

Male genitalia (Figs. 32, 33): Uncus relatively long, with a pair of long setae dorsomesially, distal margin rounded, anterior margin triangularly emarginated. Gnathos long, strongly bent before middle; culcitula with slightly produced distal margin. Valva relatively short, not reaching apex of uncus, dilated at distal end; ventral free lobe relatively small, digitate. Vinculum uniformly slender, about equal to length of tegumen plus uncus; lacking lateral lobes, slightly dilated at base; saccal region with strong break. Lobes of sicae asymmetrical, joined for about 1/5 length, weakly serrated on lateral margin, apex obtuse; left lobe almost straight, about equal to length of vinculum; right one about 2/3 length of left, gently bent inwardly beyond middle. Aedeagus extremely stout, large, lacking lateral lobes, with two internal weakly sclerotized lobes that have sharply pointed apices.

Female genitalia (Fig. 80): Antrum sclerotized triangularly, followed by narrow membranous wall ventrally. Ductus bursae broad, relatively short, with two membranous free sacs on anterior margin; ductus seminalis from near basal end of corpus bursae, with weakly coiled base. Corpus bursae long, membranous on ventral surface, with heavily sclerotized ridges laterally; accessory bursa originating on ventral surface at approximately 2/3 distance from base.

TYPES. Holotype: ♂, Taipei Co., Sirin, Taiwan, 19. IX. 1933 (S. Issiki), gen. prep. USNM-11584/ Hodges. Paratypes: 1♂, same data for holotype; 2♀, same locality, 20. IX. 1933 (S. Issiki), gen. prep. USNM-11585/Hodges; 1 (abdomen lacking), same locality, 1. XI. 1933 (S. Issiki); 1♀, Pintung Co. Kenting Bot. Garden, Taiwan, 22-25. VII. 1980 (D. Davis); 1♂, Pintung Co., Kenting park, 255m, 23-28. IV. 1989 (J. Heppner & H. Wang). Types are preserved in USNM.

Additional specimen examined: 1♂ (abdomen lacking), labeled as "1). Maskeliya, Ceylon, Pole, 3. 06, 2). comp. with type *Dichomeris intensa* Meyrick, det. J. F. G. C. 1948, 3). *Dichomeris intensa* Meyr. E. Meyrick det. in Meyrick coll."

DISTRIBUTION. Taiwan, Sri Lanka..

HOST. Unknown.

ETYMOLOGY. The species name is after Dr. Don R. Davis, Lepidopterist, Department of Entomology, Smithsonian Institution, Washington D.C., USA.

***Dichomeris orientis* Park & Hodges, sp. nov.** (Figs. 36, 37, 81, 106, Pl. D-22)

DIAGNOSIS. This species is extremely close to *davisi* in superficial characters, but it can be separated from the latter by the presence of a strong cornutus in the vesica and the long apophyses posteriores.

DESCRIPTION. Forewing length, 6.0-6.5mm. Head pale grayish orange, more shiny on vertex; frons orange white. Antenna with elongated dark-brown pedicel; flagellum lacking sensory cilia on ventral surface. Second segment of labial palpus (fig. 106) with nearly trapezoidal scale tuft ventrally, brown on outer surface, yellowish white centrally on inner surface; 3rd segment shorter than 2nd, weakly upturned. Tegula and thorax grayish brown. Forewing elongate, grayish yellow, suffused with dark-fuscos scales; costal blotch at 3/4 length of anterior margin; dark-fuscos short strigulae along anterior margin before costal blotch; a broad, dark-fuscos fascia along termen; cilia light orange; R_3 separated from R_{4+5} ; R_4 and R_5 stalked for 3/4 length; CuA_1 and CuA_2 short stalked. Hindwing gray, darker toward posterior margin; apex sharply pointed; R_s and M_1 separated; cell weakly closed. Ventral surface of fore and midlegs black; hindtibia brownish gray on outer surface, with yellowish-white area at middle, pale brownish-gray hairlike scales above, spurs black on outer surface.

Male genitalia (Figs. 36, 37): Uncus relatively long, with round distal margin. Gnathos slender, long, gently curved. Valva approximately attaining apex of uncus, dilated distally; ventral free lobe relatively stout, digitate; dorsolateral pad bearing long scaletuft spatulate. Vinculum slender, dilated at basal 1/4, with a break in saccal region; lacking lateral lobes. Lobes of sicae asymmetrical, joined for short distance; left lobe long, nearly reaching end of tegumen, deeply serrate along ventrolateral margin; right one about 1/3 length of left, clavate, with rather pointed apex. Aedeagus stout, relatively simple, lacking lateral lobes, dorsal lobe weakly sclerotized;

cornutus strong, slender, about 1/2 length of aedeagus.

Female genitalia (Fig. 81): Apophyses posteriores long, about 4x length of apophyses anteriores. Antrum broad, weakly sclerotized. Ductus bursae short, membranous; ductus seminalis arising from a free coiled tube at basal part of corpus bursae. Corpus bursae long, weakly sclerotized, with several sclerotized ridges longitudinally on inner wall; accessory bursa originating from near anterior end of corpus bursae.

TYPES. Holotype: ♂, Kaohsiung Co., 10-11 km NE Chiah sien, ca. 300 m, Taiwan, 3-8. VII. 1980 (D. Davis), gen. prep. USNM-87340/Park. Paratypes: 1 ♂, same data for holotype, gen. prep. USNM-87332/Park; 3 ♀, Pingtung Co., Kenting Bot. Garden, Taiwan, 22-25. VII. 1980 (D. Davis), gen. prep. USNM-87338/Park; 1 ♂, Kaohsiung Co., 1-2 km W Meishan, Taiwan, 29. VI.-2. VII. 1980 (D. Davis), gen. prep. USNM-87333/Park; 1 ♂, (abdomen lacking), Taipei Co., Taihoku, Taiwan, 10. VII. 1939 (S. Issiki); 1 ♂, Pintung Co., Kenting Park, 9-15. VI. 1990 (J. Heppner & H. Wang). Types are in USNM.

DISTRIBUTION. Taiwan.

HOST. Unknown.

Dichomeris horoglypta Meyrick (Figs. 34, 35, Pl. D-23)

Dichomeris horoglypta Meyrick, 1932, Exot. Microl., 4: 202; Gaede, 1937: 434; Inoue, 1954: 70; Issiki, 1957: 42, pl. 6, fig. 178; Clarke, 1969: (7)24, pl. 7, fig. 4; Moriuti, 1982: 1/284, 2/215, pl. 13, fig. 31. (Type, ♂, Kii, Hashimoto, Japan, BMNH-8564).

DIAGNOSIS. A distinct fuscous fascia along posterior margin of the forewing will separate *horoglypta* from others in the *acuminata* group.

DESCRIPTION. Forewing length, 6.0-6.3 mm. This species was originally described from Japan.

Male genitalia (Figs. 34, 35): Gnathos relatively strong, stout; culcitula with round distal margin. Valva exceeding apex of uncus; ventral free lobe rather short, digitate. Vinculum slightly dilated outwardly at basal 2/5. Lobes of sicae joined shortly at base, symmetrical, lobes very gradually tapering to rounded apexes. Aedeagus large, long, about equal length of genital capsule, with a extremely strong cornutus. Female: See Park (1994: fig. 8d).

MATERIAL EXAMINED. <Japan>: 1 ♀, Kii, Hashimoto, Honshu, 12. VIII. 1919 (S. Issiki), gen. prep. USNM-11568/Hodges; 1?, Sobosan, Kyushu, 3. VII. 1937 (S. Issiki); 1 ♂, Matsuyama, Shikoku, 17. VI. 1961 (M. Okada), gen. prep. USNM-87348/Park.

DISTRIBUTION. Japan (Honshu, Shikoku), Korea (only southern part).

HOST. *Indigofera pseudotinctoria* Matsumura (Leguminosae) is known from Japan (Moriuti, 1982).

Dichomeris malacodes (Meyrick) (Figs. 13, 14, Pl. D-24)

Nothris malacodes Meyrick, 1910, Trans. Ent. Soc. London, 1910: 451.

Acribologa malacodes: Meyrick, 1925: 171; Gaede, 1937: 426; Clarke, 1969: (6) 221, pl. 109, fig. 1.

Dichomeris malacodes: Hodges, 1986: 12. (Type: ♂, Dibidi, N. Coorg, India, BMNH-8572).

DESCRIPTION. Forewing length, 4.7-5.3 mm. Second segment of labial palpus with triangular scale tuft, yellowish white on anterior margin; 3rd segment slender, strongly upturned. Ocellus present. Antenna with sensory cilia on ventral surface of flagellum in male. Male with a pair of scale tufts arising from mesothoracic anepisternum. Forewing ochreous, with two black stigma at middle and near end of cell; a black patch beneath the first stigmata; veins CuA_1 and CuA_2 separated. Hindwing pale gray, apex strongly produced; cell weakly closed. Female: unknown.

Male genitalia (Figs. 13, 14): Valva with a broad expansion at base anteriorly; lobes of sicae almost symmetrical, lobes distant at base; vinculum lacking sclerotized lateral lobes. Aedeagus with a long, slender cornutus.

MATERIAL EXAMINED. <Taiwan>: 1 ♂, Taipei Co., Taihoku, Taiwan, 15. X. 1935 (S. Issiki); 1 ♂, same data for the preceding specimen; 1 ♂, Nantou Co., Tikusiko, Taiwan, E. VI. 1939 (S. Issiki). Additional specimens examined: 1 ♂, indicated as "1). Galla, Ceylon, BF 31. 5. 07; 2). Meyrick coll. BM 1938-290, 3). *Acribologa malacodes*, 7/2 E. Meyrick det. in Meyrick coll., 3). comp. with type. *Acribologa malacodes* Meyrick, det. J. F. G. C. 1948, 4). gen. slide USNM-11583/Hodges"; 1 ♂, Pusa, Bengal, T. B. F. 11. IX..

DISTRIBUTION. Taiwan (new record), India, Sri Lanka, Borneo.

HOST. Unknown.

REMARKS. Meyrick (1923) described the genus *Acribologa*, based on *malacodes* from Borneo, India and Sri Lanka, and he stated that "this species is closely allied to *Dichomeris*, but it differs from the latter by the separation of veins CuA_1 and CuA_2 in the forewing and by the presence of cubital pecten in hindwing."

microsphena group

*Dichomeris microsphen*a is the only member of the group in Taiwan and Japan. An apomorphy is the shape of the uncus, which has two lateral and a mesial projection on the caudal margin. A similarly shaped uncus is also found in some South African species that were described in *Eporgastis* Meyrick (= *Dichomeris*): *maturata* (Meyrick), *syngrapta* (Meyrick), **comb. nov.**, and *conclusa* (Meyrick), **comb. nov.** The forewing is relatively short, the male lacks a mesothoracic scale tuft, and the cubital pecten in the hindwing is absent.

*Dichomeris microsphen*a Meyrick (Figs. 60, 61, 107, Pl. E-25)

Dichomeris microsphenæ Meyrick, 1921, Zool. Med. Leid. 6: 166.

Gaesa microsphenæ; Meyrick, 1925: 179; Gaede, 1937: 449. (Type: ♀, Buitenzorg, Java).

DESCRIPTION. Forewing length, 7.0-7.8 mm. Second segment of labial palpus (fig. 107) triangularly expanded, brown on outer surface with whitish-tipped scales on anterodorsal margin; 3rd segment slender, longer than 2nd, orange white dorsally, dark brown ventrally. Forewing with a costal blotch near middle of anterior margin; two pairs of small discal spots near middle and end of the cell.

Male genitalia (Figs. 60, 61): Uncus broad, short, posterior margin with well-developed short projections mesially and laterally. Gnathos relatively short. Valva broadly dilated distally, exceeding apex of uncus; ventral free lobe relatively stout, with narrowed base. Vinculum narrow at basal 2/5 and broadened beyond it, with an expansion near middle. Sicae short, stout, symmetrical, lobes approaching each other distally. Aedeagus weakly sclerotized on basal half, with a triangular protrusion at left end of zone; internal lobes weakly developed; lacking cornutus.

Female genitalia (Fig. 95): Caudal margin of 8th tergum broadly convex, excavated laterally. Ductus bursae broad, not well defined, with a long sclerotized, longitudinal ridge extending nearly to anterior end of corpus bursae.

MATERIAL EXAMINED. <Taiwan>. 1 ♂, Taipei Co., Taihoku, 26. V. 1946 (S. Issiki), gen. prep. USNM-11569/Hodges, with label of *Bridelia ovata*; 1 ♀, Taihoku, 17. XII. 1930 (S. Issiki), gen. prep. USNM-87341/Park; 1 ♂, Taitung Co., Chihpen Hot Springs, 28. VIII. 1983, 100 m (J. Heppner & H. Wang).

DISTRIBUTION. Taiwan (new record), India (Assam), Java.

HOST. According to the label on a Taiwanese specimen, the larva is a leafroller of *Bridelia ovata* Decne (Euphorbiaceae).

REMARKS. *Dichomeris microsphenæ* was described from Buitenzorg, Java, based on a female. A male specimen from Assam, India was included in the type series, with a qualifier "terminal joint ♂ palpi relatively longer" by Meyrick (1921).

sparsellus group

Hodges (1986) placed *sparsellus* and *atomogypsa* in the *ventrella* group. This study shows that *angulata*, *trilobella* also are belong to the *sparsellus* group in Japan and Taiwan. General characters for this species group: relatively broad winged; 2nd segment of labial palpus with well-developed scale tufts ventrally and dorsally; ocellus present; male without a long scale tuft on mesothorax; hindwing lacking cubital pecten; in male genitalia, valva greatly exceeding apex of uncus, with a pair of membranous lobes arising from near the base of the vinculum, and usually with lobes ankylosed with the wall between aedeagus and sicae, except in *trilobella*; ductus seminalis usually without a heavily sclerotized ring at base.

Key to the species of the *sparsellus* group

1. Forewing with dark-brown triangular costal blotch on anterior margin 2
 - Forewing lacking of costal blotch 4
2. Forewing elongate, apex acute; ratio of forewing width to length less than 0.25; male with sicae almost symmetrical, aedeagus with single lateral lobe; female with corpus bursae membranous, distinct from ductus bursae without heavily sclerotized ridges *angulata*
 - Forewing moderately broad, apex obtuse; ratio of forewing width to length more than 0.33; male with sicae multilobed, aedeagus with double lateral lobes; female with corpus bursae merged with ductus bursae, with sclerotized ridges *trilobella*
3. Forewing light brown, postmedian line developed, without small spots; male with ventral free lobes long, bar shaped, about 1/2 length of valva, directed outwardly; female with free dorsal plate beyond 8th tergum *sparsellus*
 - Forewing pale grayish brown, postmedian line absent, small spots irregularly spaced; male with ventral free lobes short, less than 1/3 length of valva, directed distally; female without free dorsal plate beyond 8th tergum *atomogypsa*

***Dichomeris sparsellus* (Christoph)** (Figs. 38, 39, 84, 108, Pl. E-26)

Ypsolophus sparsellus Christoph, 1882, Bull. Soc. Nat. Mosc., 57(1): 29.

Gaesa sparsella; Meyrick, 1925: 179.

Gaesa sparsellus; Gaede, 1937: 449; Issiki, 1957: 41, pl.6, fig. 171; Saito, 1969: 113, fig. 218;

Moriuti, 1982: 1/285, 2/215, pl. 13, fig. 38, pl. 227, fig. 15.

Dichomeris sparsella; Hodges, 1986: 72. (Type: ♂, Vladivostok, Russia).

DESCRIPTION. Forewing length, 10.5-11.0 mm. Forewing with almost straight anterior margin, yellowish white along anterior margin; Ground color light brown, with pale-orange transverse median line near end of cell which is strongly incurved; R_3 separate from R_{4+5} , R_4 and R_5 stalked for about 1/2 length, CuA_1 and CuA_2 relatively long stalked. Hindwing gray; R_5 and M_1 separate at base.

Male genitalia (Figs. 38, 39): Uncus relatively small, short. Valva rather broad; exceeding apex of uncus; ventral free lobe digitate, as long as gnathos, extending posteriorly; dorsolateral pad bearing long scale tuft relatively long, spatulate. Vinculum longer than tegumen plus uncus; lateral lobes extending inwardly, asymmetric; saccal region round. Sicae asymmetrical, left lobe longer, sickle shaped, slightly bent ventrally, with four setae beyond middle on ventral surface; right one bent outwardly with three strong setae; lobes tightly ankylosed with aedeagus, very slender, with a small lobe at base. Aedeagus with narrowed basal zone; dorsal lobe slender, sharply pointed; left one horn shaped; right one very short, spatulate;

cornutus absent.

Female genitalia (Fig. 84): Eighth tergum strongly produced mesially, heavily sclerotized. Lamella antevaginalis with membranous anterior sacs laterally. Antrum heavily sclerotized, with several complicated longitudinal ridges, fusing with ductus bursae; ductus seminalis arising from mid-length of ductus bursae dorsally. Corpus bursae ovate, uniformly membranous; accessory bursa arising from near anteroventral end of corpus bursae.

MATERIAL EXAMINED. <Japan>: 1♀, Isidutiyama, Sikoku, 10. VI. 1950 (S. Issiki); 1♂, Iwawakisan, Kinki, Honshu, 7. VIII. 1952 (S. Issiki), gen. prep. USNM-11557/Hodges; 1♀, Iwawakisan, 9. VIII. 1952 (S. Issiki), reared from *Juglans* sp.; 1♂, Iwawakisan, 10. VI. 1953 (S. Issiki); 1♀, Iwawakisan, 22. IX. 1954 (S. Issiki); 1♀, Iwawakisan, 29. V. 1954 (S. Issiki); 1♀, Sanchokadake, Kinki, Honshu, 18. VIII. 1931 (S. Issiki); 1♀, Sanchokadake, 14. VIII. 1951 (S. Issiki); 1♀, Tokyo, 16. VIII. 1915 (S. Issiki), gen. prep. USNM-11558/Hodges.

DISTRIBUTION. Japan (Honshu, Shikoku), Korea (Central), Russian Far East (Amur, Ussuri).

HOSTS. *Pterocarya rhoibodia* S. et Z. and *Juglans ailanthifolia* Cart. (Fagaceae) were reported from Japan (Saito, 1969).

REMAKS. The upcoming edition of the *International Code of Zoological Nomenclature* has the provision that the original spelling of a name is the spelling to be used; gender concord no longer will pertain. The original spelling of this species was *Ypsolophus sparsellus*, and we likely should use it rather than *D. sparsella*.

***Dichomeris atomogypsa* (Meyrick) (Figs. 40, 41, 86, Pl. E-27)**

Gaesa atomogypsa Meyrick, 1932, Exot. Microl., 4: 202; Gaede, 1937: 4478; Issiki, 1957: 41, pl. 6, fig. 170; Clarke, 1969: 103, pl. 51, fig. 1; Saito, 1969: 113, fig. 217; Moriuti, 1982: 1/285, 2/215, pl. 13, fig. 39.

Dichomeris atomogypsa: Hodges, 1986: 72. (Type: ♀, Kii, Hashimoto, Japan, BMNH-8598).

DIAGNOSIS. *Dichomeris atomogypsa* superficially is close to the Korean species, *fareasta* Park, but it can be easily distinguished from *fareasta* by the male genitalia (see Park, 1994: figs. 7a-b). However, no significant differences could be found in the female genitalia. It is also close to the North American species *ventrella* in external characters.

DESCRIPTION. Forewing length, 11.5-13.5 mm. Ground color of the forewing rather pale grayish brown, but the color pattern is highly variable.

Male genitalia (Figs. 40, 41): Uncus relatively short, a pair of long setae dorsally and short ones densely spaced on ventral surface. Gnathos moderate; culcitula strongly convex at middle. Valva dilated distally; ventral free lobe very long, about 2/5 length

of valva. Vinculum narrow, longer than length of tegumen plus uncus; lacking lateral lobes. Sicae asymmetrical, fused at basal $1/3$; left lobe longer than right, bent preapically; apex acute. A secondary sclerotized lobe complex is strongly ankylosed with sicae and aedeagus dorsolaterally. Aedeagus about equal to genitalia in length; basal part about $1/3$ length, narrowed toward base; lateral lobes branched into two arms; dorsal lobe heavily sclerotized, with pointed apex; cornutus heavily sclerotized, about $1/5$ length of aedeagus.

Female genitalia (Fig. 86): Caudal margin of 8th sternum with a broad protrusion bearing several long setae at middle on distolateral margin. Apophyses anteriores long, about $2/3$ length of apophyses posteriores. Antrum extremely broad, extended as membranous pouches anteriorly, one on right side better developed. Ductus bursae with complex of several sclerotized plates and ridges as figured; ductus seminalis from dorsal surface of antrum. Corpus bursae rather long, membranous; accessory bursa arising from ventral surface of corpus bursae at $2/3$ length; signum lacking.

MATERIAL EXAMINED. <Japan>: 1♂, Kii, Hashimoto, Honshu, mid. X. 1920 (S. Issiki), gen. prep. USNM-11559/Hodges; 1♀, same locality, 16. VI. 1920 (S. Issiki), gen. prep. USNM-87328/Park; 1♀, same locality, 20. VI. 1920 (S. Issiki); 1?, Yase, Kyoto, Honshu, 15. VII. 1946 (A. Mutuura); 1?, Kyoto, Honshu, 26. VI. 1915 (S. Issiki); 1♀, Iwawakian, Kinki, Honshu, 3. VIII. 1951 (S. Issiki); 1♀, Hakone, Miyanosita, Honshu, 31. VIII. 1950 (H. Inoue); 1♂, Tochimoto, Saitama, Honshu, 22. VII. 1953 (Haruta).

DISTRIBUTION. Japan (Honshu, Shikoku; endemic).

HOSTS. *Quercus acutissima* Carruth, *Q. dentata* Thunb., and *Q. serrata* Thunb. (Fagaceae) have been reported from Japan (Saito, 1969).

***Dichomeris trilobella* Park & Hodges, sp. nov.** (Figs. 40, 41, 86, Pl. E-27)

DIAGNOSIS. No distinctly characteristic external feature(s) that will discriminate between this species and *bisignellus* (Snellen, 1985) **comb. nov.**, which was described from Bonthian, Celebes, Indonesia. According to examination of the holotype of *Ypsolophus bisignellus* (gen. prep. no. DA-3346), we could find that the paratype (female) of this new species is distinct from the holotype as follows. Ratio of length of apophyses anteriores to apophyses posteriores: *trilobella*=0.30; *bisignellus*=0.59. *D. bisignellus* has an anteriorly directed, lightly sclerotized appendix on the left margin of the corpus bursae at $2/5$ the length of the corpus bursae; *trilobella* lacks such an appendix.

DESCRIPTION. Forewing length, 9.5-10.0 mm. Second segment of labial palpus expanding triangularly, dark brown on outer surface and grayish brown on inner surface; apex suffused with short whitish-tipped scales on anterodorsal margin; 3rd segment long, about 1.5x length of 2nd. Ocellus absent. Forewing rather elongate,

gently arched at $1/4$ length, then almost straight; ground color grayish brown; dark-brown scales irregularly scattered over surface, denser beyond middle of wing; a distinct dark-brown spot at base; costal blotch dark brown, with sharp angle, extending posteriorly before middle; R_3 far from base of R_{4+5} ; R_4 and R_5 stalked beyond $1/2$ length; CuA_1 and CuA_2 short stalked. Hindwing dark gray; termen strongly sinuate; apex moderately produced; cubital pecten absent; R_5 and M_1 connate; cell closed.

Male genitalia (Figs. 42, 43): Uncus convex at middle of distal margin. Gnathos short. Valva exceeding apex of uncus, slightly expanded distally; ventral free lobe broad, weakly serrated on distal margin. Vinculum almost equal length of tegumen plus uncus; lacking lateral lobes. Sicae with three slender lobes; left two slender, approximate, right one stout, with two small projections at apex. Aedeagus with two sickleshaped lateral lobes; left one slightly longer than right; cornutus long, about $3/4$ length of aedeagus.

Female genitalia (Fig. 87): Apophyses anteriores short, about $1/3$ length of apophyses posteriores. Posterior part of antrum broad, weakly sclerotized, gently incurved on distal margin. Ductus bursae not discrete from corpus bursae, with well-sclerotized longitudinal ridges; ductus seminalis arising from a broad basal tube on dorsolateral surface of ductus bursae. Corpus bursae large, weakly sclerotized on distal $3/4$ and membranous on anterior $1/3$; accessory bursa arising from anterior $1/3$ on ventral surface; lacking signum.

TYPES. Holotype: ♂, Pingtung Co., Kenting Bot. Garden., Taiwan, 22-25. VII. 1980(D. Davis), gen. prep. USNM-87323/Park. Paratypes: 3 ♀, same data for holotype, ge. prep. USNM-87323/Park.

DISTRIBUTION. Taiwan.

HOST. Unknown.

***Dichomeris angulata* Park & Hodges, sp. nov.** (Figs. 44, 45, 88, Pl. E-29)

DIAGNOSIS. *Dichomeris angulata* is similar to *trilobella* sp. nov. and *oxycarpa* (Meyrick) in the external features. It can be easily separated from *oxycarpa* by the shape of labial palpus, which is triangularly expanded while simply thickened in *oxycarpa*. However, it is not easy to distinguish *angulata* from *trilobella* superficially.

DESCRIPTION. Forewing length, 10.0-10.5 mm. Head brownish gray, with yellowish-white scales above eye. Ocellus present. Second segment of labial palpus expanded triangularly, with roughly erect creamy-white scales on anterodorsal margin, dark brown on inner and outer surface; 3rd segment very slender, about $1.5 \times$ length of 2nd, grayish orange throughout, sparsely suffused with dark-brown scales. Tegula brownish gray, suffused with dark-fuscous scales on anterior margin. Thorax brownish gray, suffused with dark scales along posterior margin. Ventral surface of legs

brownish gray; hindtibia pale grayish orange, suffused with brownish-gray scales, with long yellowish-white scales above. Forewing elongate, anterior margin gently arched near $1/4$ and $3/4$ length and slightly incurved near middle; apex strongly produced, acute; termen oblique, slightly sinuate; ground color pale brownish gray, dark-brown scales densely scattered near basal $1/3$ and diffuse beyond $1/3$; costal blotch developed near middle of anterior margin, dark brown, subtriangular with strong angle; R_3 separated from R_{4+5} ; R_4 and R_5 stalked beyond $1/2$ length; CuA_1 and CuA_2 short stalked. Hindwing pale gray; termen strongly sinuate; R_s and M_1 separated; cell closed.

Male genitalia (Figs. 44, 45): Uncus short, broad, caudal margin rounded, with a pair of long setae dorsodistally. Gnathos relatively small; culcitula convex at middle on caudal margin. Valva extending beyond apex of uncus; ventral free lobe very short, with broad base, sparsely setose. Vinculum slightly shorter than length of tegumen plus uncus; lacking lateral lobes; a pair of triangular, membranous lobes on membrane near base of vinculum. Sicae short, asymmetrical, joined for short distance, mesial margin in U-shape basally; left lobe sickle shaped, with 4-5 setae; right lobe more strongly bent beyond middle. Aedeagus rather slender, simple, well sclerotized beyond basal part; left lateral lobe sickle shaped; lacking cornutus.

Female genitalia (Fig. 88): Distal margin of 8th tergum sclerotized, strongly protruded posteriorly. Apophyses anteriores about $1/5$ length of apophyses posteriores. Antrum short and broad, straight on distal margin; a long sclerotized lobe extending to entrance of corpus bursae. Ductus bursae rather long, weakly sclerotized; ductus seminalis arising from anterior part of ductus bursae dorsolaterally. Corpus bursae large, membranous; lacking signum; accessory bursa arising from left side of corpus bursae.

TYPES. Holotype: ♂, Nantou Co., Leinhauchi For. Stn. 15 km, SW Puli 750 m, NanTow Co., Taiwan, 22-26. V. 1980 (D. Davis), gen. prep. USNM-87321/Park; Paratypes: 1♂, 2♀, same data for holotype; 2♀, Nantou Co., Lushan ca. 30 km, e. Wushe 1000m, 27-31. V. 1980 (D. Davis), gen. prep. USNM-87322/Park. Types are in USNM.

DISTRIBUTION. Taiwan.

HOST. Unknown.

oxycarpa group

Dichomeris oxycarpa is the only member of the species group, and it is native to Taiwan. The *oxycarpa* group is related to the *sparsellus* group and is defined by the following characters: ocellus present; male lacking scale tuft arising from mesothoracic anepisternum; forewing elongate, with a well-developed costal blotch; 2nd segment of labial palpus simply thickened ventrally and with scale tufts dorsally, 3rd segment thickened; hindwing lacking cubital pecten; male genitalia with uncus

convex mesially, gnathos strongly curved, sicae symmetrical.

Dichomeris oxycarpa (Meyrick) (Figs. 46, 47, 90, 109, Pl. E-30)

Musurga oxycarpa Meyrick, 1935, Exot. Microl. 4: 562; Gaede, 1937: 463; Clarke, 1969: 244, pl. 122, fig. 2.

Dichomeris oxycarpa; Heppner & Inoue, 1992: 17. (Type: ♀, Taihoku, Formosa, BMNH-8608).

DIAGNOSIS. No superficial characters were found to distinguish *oxycarpa* from *D. diacrita* (Diakonoff, 1967), which was described from Luzon, Philippines. Comparison with the type specimens of *diacrita* Diakonoff, (USNM-5184/Diakonoff, ♂) by the male genital characters, reveals the following differences: *oxycarpa* has a strongly curved gnathos, free ventral lobes with a small branch dorsobasally, and a long cornutus in aedeagus. No characters have been found to separate the female genitalia from *diacrita* (USNM-5185/Diakonoff, ♀). Kanazawa and Heppner (1992) listed *oxycarpa* and *diacrita* in the "Check list of the Lepidoptera of Taiwan"; however, we believe that *diacrita* does not occur in Taiwan and that the moths were misidentified.

DESCRIPTION. Forewing length, 7.0-8.5 mm. Second segment of labial palpus (fig. 109) thickened ventrally, with scale tuft dorsally; 3rd segment as long as 2nd, with basal 1/4 dark brown. Ground color of forewing generally grayish green, but it is often variable among individuals with dark to pale greenish gray; costal blotch at middle with somewhat rounded posterior margin, not angled.

Male genitalia (Figs. 46, 47): Uncus convex mesially on distal margin. Gnathos strongly curved into U-shape. Valva gradually broadened beyond basal 1/3; ventral free lobe slender, about 1/4 length of valva, and having a short dorsobasal lobe. Vinculum narrow, relatively short; lateral lobe forming a broad plate, arising from basal 1/3 length. Sicae symmetrical; each lobe with four teeth beyond 1/2 length ventrally, with few setae at apex. Aedeagus about equal length of valva; internal lobe large, stout, heavily sclerotized, rather hornshaped; cornutus heavily sclerotized, about 2/3 length of internal lobe; numerous minute spicules near middle.

Female genitalia (Fig. 90): Apophyses anteriores about 1/4 length of apophyses posteriores. Ductus bursae long, membranous, with long, heavily sclerotized cestum which is dilated anteriorly, reaching near half of bursae; ductus seminalis arising from distal part of left lobe of ductus bursae. Corpus bursae with lateral membranous free lobes near 1/3 and 1/2 length; signum consist of numerous minute spicules near anterior 1/4 length of corpus bursae; accessory bursa arising from wall of signum.

MATERIAL EXAMINED. <Taiwan>: 1 ♂, Pingtung Co., Kenting Bot. Garden, 10-14. VII. 1980 (D. Davis), gen. prep. USNM-82735/Park; 4 ♂, 11 ♀, same data for the preceding specimens, gen. prep. USNM-82736/Park; 1 ♂, 2 ♀, Nantou Co., Lu-shan ca. 30 km E Wu-she, 1000 m, 27-31. V. 1980 (D. Davis); 1 ♂, Taipei Co., Taihoku, 6.

IX. 1934 (S. Issiki); 1♂, Taipei Co., Taihoku, 19. X. 1923 (S. Issiki); 1♀, Taihoku, 5. XI. 1923 (S. Issiki); 1♂, Taihoku, 5. XI. 1932 (S. Issiki).

DISTRIBUTION. Taiwan.

HOST. Unknown.

picrocarpa group

Dichomeris picrocarpa, *taiwana*, *fusca*, and *lutea* comprise the *picrocarpa* group in Japan and Taiwan. The species group is recognized by the following characters: ocellus absent; forewing elongate, slightly dilated distally; male with a pair of scale tufts arising from mesothoracic anepisternum; hindwing with cubital pecten; vinculum with a pair of relatively long lobes mesially, extending posteriorly from about middle of lateral arms; lobes of sicae arising separated from each other, symmetrical or asymmetrical, sometimes multilobed; aedeagus free, with heavily sclerotized lateral lobes; lacking cornutus; apophyses anteriores very short, stout; distal part of 8th tergum sclerotized with round caudal margin; corpus bursae densely spiculose in part; heavily sclerotized ring near base of ductus seminalis; lacking sclerotized signum. All the known species are native to Southeast Asia, including Taiwan. It is known that *picrocarpa* was introduced into North America from Japan.

Key to the species based on external characters

1. Forewing with dark-brown fascia on termen inwardly 2
 - Forewing without such dark-brown fascia on termen inwardly *lutea*
2. Forewing brownish orange; hindwing dark gray 3
 - Forewing yellowish orange; hindwing pale gray *fusca*
3. Forewing length more than 7.5 mm, 2nd segment of labial palpus reddish orange on inner surface, 3rd segment much shorter than 2nd *picrocarpa*
 - Forewing length less than 7.2 mm, 2nd segment uniformly ochreous on inner surface, 3rd slightly shorter than 2nd *taiwana*

Key to the species based on male genital characters

1. Valva nearly as long as length of tegumen plus uncus; vinculum with a pair of slender lateral lobes mesially; lobes of sica with U-shaped mesial margin 2
 - Valva greatly exceeding apex of uncus, vinculum without lateral lobes arising from middle; lobes of sicae far from each other at base *lutea*
2. Sicae almost symmetrical 3
 - Sicae asymmetrical; left lobe bar-shaped, right one bifurcate *fusca*
3. Lobes of sicae bifurcate *picrocarpa*
 - Lobes of sicae with nearly pointed apex *taiwana*

Dichomeris picrocarpa (Meyrick) (Fig. 110, Pl. F-31)

Carbatina picrocarpa Meyrick, 1913, Jour. Bombay nat. Hist. Soc., 22: 182.; Meyrick, 1925:185; Gaede, 1937: 453; Clarke, 1969: 394, pl. 196, fig. 1; Saito, 1969: 112, fig. 216; Moriuti, 1982, 1/286, 2/215, fig. 13: 41, fig. 259: 3; Park, 1983: 502, fig. 164.

Dichomeris picrocarpa: Hodges, 1986: 119, fig. 23 & 27. (Type: Khasis, Assam, BMNH-9374).

Trichotaphe iothalles Forbes, 1939: 159 (Type: New Brunswick, New Jersey, USNM).

DIAGNOSIS. The lectotype designated by Clarke (1969) was based on a specimen from Khasis. It lacks an abdomen; thus, the identification of this species was based on the Japanese specimens from the syntype series by Hodges (1986). We examined and compared our material with a specimen from the type locality, which was previously compared with a syntype by Clarke (label on specimen) and is preserved in the USNM. Korean and Japanese specimens generally are larger, as compared with those from the Khasis Hills, but we consider them to be conspecific with the type.

DESCRIPTION. Forewing length, 7.5-8.5 mm. The adult was recently redescribed in detail by Hodges (1986: 119-120).

Male and female genitalia: For details, see Hodges, 1986: text figs. 23, 27. The lateral processes of the aedeagus are somewhat variably shaped, but these differences are believed to represent an infraspecific variation.

MATERIAL EXAMINED. <Taiwan>: 1♂, Hualien Co., Tzuen, 19-20. VI. 1982, 1935 m, (J. Heppner & H. Wang). <Japan>. 1♂, Tokyo, Honshu, 29. VI. 1918 (Issiki); 1♂, 1♀, Takayama, Tyubu-Gifu, Honshu, 25. VII. 1954 (T. Kodama); 1♂, Takayama, Tyubu, 25. VIII. 1954 (S. Issiki); 1♀, Manchria, Kinsyu, 11. VI. 1929 (Kondo); 1♂, Kinki, Awajisima, Honshu, 11. VI. 1946, (H. Mutuura); 1, Nisinomiya, Kinki, Honshu, 7. VII. 1949 (S. Issiki); 1♂, Tokyo, 19. VII. 1932, To (Issiki); 1♀, Hukusima, Honshu 21. V. 1955 (T. Yasuda); 2♂, Yokohama, Kyushu, 3. VI. 1951 (H. Inoue), gen. prep. USNM-86944/Park; 1♂, 1♀, Mt. Takao, ?? 17. VI. 1958 (A. Kawabe), gen. prep. USNM-86943/Park; 1♀, Nagayu, Kyushu, 2. VII. 1932 (S. Issiki); 30♂, 40♀, Shindenbaru, Fukuoka, Kyushu, 6-7. V. 1940 (R. W. Burrell); 15♂, 16♀, same locality 13. V. 1940 (R. W. Burrell) bred on *Prunus persica*. **Additional specimen examined:** "Khasi Hills, Assam, 1906," "comp. with Type, *Carbatina picrocarpa* Meyr. Det. J.F.G.C. 1948, Genotype," "*Carbatina picrocarpa* Meyr. 5/2, E. Meyrick det. in Meyrick Coll," "Meyrick Coll. B.M. 1938-290."

DISTRIBUTION. Taiwan, Japan (Honshu, Shikoku, Kyushu), Korea, Russian Far East, India (Assam), N. America.

HOSTS. A specimen (Sakai, Osaka, Japan-emerged on 23. VI. 1955, without name of collector) was reared from *Prunus yedoensis* M. by R. W. Burrell (1940), and *Prunus persica* (L.) Batsch (Rosaceae) was reported from Korea (Okamoto, 1941).

According to Hodges (1986), *picrocarpa* probably was introduced into Eastern North America from Japan in the late 1920 s or early 1930 s. In North America it has been reared from cherry, red oak, and questionably white pine.

Dichomeris taiwana Park & Hodges, sp. nov. (Figs. 48, 49, 82, Pl. F-32)

DIAGNOSIS. *D. taiwana* is extremely similar to *picrocarpa* (Meyrick) superficially, but *taiwana* is generally smaller. Significant differences are as follows: in *picrocarpa*, labial palpus stout, 2nd segment reddish orange on inner surface; 3rd segment much shorter than 2nd; two stigma usually present in discal cell; preterminal fascia followed by a distinct white line along termen.

DESCRIPTION. Forewing length, 6.5-7.2 mm. Head pale grayish orange, speckled with shining orange-gray scales mesially, frons rather paler. Antenna with pedicel dark brown dorsally, ochreous ventrally; flagellum with dark-gray rings dorsally, with dense sensory hairs ventrally. Second segment of labial palpus dark brown outwardly, uniformly ochreous inwardly, with moderate dorsal scale tuft; 3rd segment slightly shorter than 2nd, dark brown, strongly upturned, dorsal scale tuft developed from before middle, apex yellowish white. Thorax and tegula pale grayish orange; tegula with dark-brown anterior margin, paler toward posterior end. Male with a pair of long yellowish-white scale tufts arising from mesothoracic anepisternum. Forewing with anterior margin gently arched; apex moderately pointed; ground color light orange or pale grayish orange, dark-brown scales scattered irregularly, often with several brown streaks extending longitudinally along fold, with dark-brown fascia along anterior and posterior margins; a well-developed, broad, dark-fuscos fascia along termen anteriorly; cilia yellowish ochreous, with a pale-brown band at 1/2 length, gray around tornus and along dorsum; R_3 connate with R_{4+5} , R_4 and R_5 stalked, about at 2/3 length; CuA_1 and CuA_2 stalked, then parallel and approximate. Hindwing gray; apex sharply pointed; termen strongly sinuate; cubital pecten weakly developed, with a well-developed pecten on the base of cubitus. Ventral surface of fore- and midlegs dark brown; hindtibia yellowish white on outer surface, with short scales on dorsal surface.

Male genitalia (Figs. 48, 49): Uncus relatively long. Gnathos slender; culcitula rather small; with round distal margin. Valva slightly dilated distally, nearly as long as length of tegumen plus uncus; free ventral lobe long, with a dilated apex bearing about 15 long setae. Appendix appendicular spatulate, extending outwardly, bearing long scale tuft near base of vinculum. Vinculum relatively slender, with slender lateral lobes extending posteriorly from middle; saccal region rounded. Sicae almost asymmetrical, mesial margin U-shaped; left lobe simple with pointed apex, slightly longer than right one, with four long setae on lateral margin near apex; right one with a small projection prior to apex, bearing 4-5 long setae beyond the projection. Aedeagus stout, basal zone round at base, shorter than 1/3 length; dorsal lobe from zone simple, lightly sclerotized, with obtuse apex; lateral lobes heavily sclerotized, left lobe rather broad with two strong teeth near middle of inner margin and a row of small denticles along ventrolateral margin, right one about 2/3 length of left, with rather flat distal margin and weakly serrated inner margin; lacking cornutus.

Female genitalia (Fig. 82): Apophyses anteriores very short, stout. Distal part of 8th tergum sclerotized, with rounded distal margin. Antrum broad, heavily sclerotized, with asymmetrical anterior protrusions. Ductus bursae well distinguished from corpus bursae, with a long sclerite laterally; ductus seminalis arising from beyond middle of ductus bursae dorsally, with heavily sclerotized ring near base. Corpus bursae ovate, membranous, with dense spicules on wall, longer spicules on central part; lacking signum; accessory bursa arising from central part of corpus bursae ventrally.

TYPES. Holotype: ♂, Nantou Co., Sunmoon Lake, 760m, Taiwan, 20-25. VI. 1980 (D. Davis), gen. prep. USNM-87329/Park. Paratypes: 1 ♂, Tainan Co., Kansirei, Taiwan, 20. X. 1934 (S. Issiki); 1 ♀, Nantou Co., Suisya, Taiwan, 20. III. 1943 (S. Issiki); 1 ♀, Hsiung Co. 10-11 Km NE Chiahsien ca. 300m, Taiwan, 3-8. VII. 1980 (D. Davis) gen. prep. USNM-87330/Park. Types are in USNM.

DISTRIBUTION. Taiwan.

HOST. Unknown.

Dichomeris fusca Park & Hodges, sp. nov. (Figs. 50, 51, Pl. F-33)

DIAGNOSIS. Very similar to *picrocarpa* (Meyrick), but the forewing is broader, yellowish with a conspicuous brown spot beneath cell medially, antenna with dark rings beyond 1/3 length, while *picrocarpa* has a narrower forewing, reddish, without a spot beneath the cell, and antenna with dark rings from base. *D. taiwana* is also similar to *fusca*, but *taiwana* is much smaller.

DESCRIPTION. Forewing length, 10.2 mm. Head yellowish orange, with shining reflection medially, pale yellowish laterally. Antenna with elongate, grayish-brown pedicel; flagellum yellowish ochreous, with brown rings beyond 1/3 length, with dense sensory hairs ventrally. Second segment of labial palpus grayish brown on outer surface, ochreous on inner surface, with scale tuft beyond middle dorsally, 3rd segment shorter than the 2nd, thickened with rough scales dorsally, uniformly grayish brown; apex yellowish white. Thorax yellowish orange. Tegula pale yellowish orange, grayish brown on anterior margin. Male with a pair of long yellowish-white scale tufts arising from mesothoracic anepisternum. Forewing relatively broad; pale yellowish orange, with few small brown scales on the surface, but more dense near hind margin; anterior margin almost straight, grayish-brown fascia running along the margin; a well-developed brown spot beneath cell medially, another small brown spot at end of cell; a broad grayish-brown fascia on termen inwardly; R_3 connate with R_{4+5} , R_4 and R_5 stalked for 2/3 their length, CuA_1 and CuA_2 stalked mesially, then separated. Hindwing rather pale gray; cubital pecten weakly developed. Female: unknown.

Male genitalia (Figs. 50, 51): Uncus with round caudal margin; hook of gnathos long and relatively slender. Valva slightly exceeding apex of uncus; free ventral lobe long, digitate, slightly bent inwardly near base. Sicae asymmetrical, left lobe stout, 3-4

strong setae preapically, right one bifurcate, sharply pointed with 4-5 strong setae on right arm preapically. Vinculum with a pair of slender lobes extending posteriorly from near middle; saccal region sclerotized, convex. Aedeagus free, about equal to genitalia in length, with a pair of well-developed lobes from zone, left one stouter and longer than right one; cornutus lacking.

TYPE. Holotype: ♂, Taiwan, Taichung Co., Hassenzan, 4. VI. 1942 (S. Issiki), gen. prep. USNM-87474/Park. Type is in USNM.

DISTRIBUTION. Taiwan.

***Dichomeris lutea* Park & Hodges, sp. nov.** (Figs. 52, 58, Pl. G-37)

DIAGNOSIS. Similar to *fusca* sp. nov., but forewing orange throughout, with a distinct discal spot, without grayish-brown fascia along anterior margin and termen; hindwing darker.

DESCRIPTION. Forewing length, 10.0 mm. Head orange, with grayish-metallic scales mesially. Antenna with short sensory scales ventrally in male. Second segment of labial palpus thickened with appressed scales ventrally and with roughly erect scales dorsally; brownish orange on outer surface, pale orange on inner surface; 3rd segment slightly shorter than 2nd. Ocellus absent. Thorax orange, with grayish scales in median and posterior part. Male with a pair of long scale tufts arising from mesothoracic anepisternum. Forewing elongate, broader distally; ground color orange throughout, under surface of wing gray, pale orange along anterior margin; a large dark-brown discal spot near end of cell, a small inconspicuous spot before middle of cell, and a narrow, brown postmedian fascia, 4-5 dark-brown, small stigmata along termen inwardly; cilia concolorous; R_3 connate with R_{4+5} ; R_4 and R_5 stalked; CuA_1 and CuA_2 short stalked. Hindwing gray; R_5 and M_1 stalked; cell closed; cubital pecten present. Ventral surface of fore- and midlegs brownish orange; tarsus brown with four terminal segments dark brown dorsally; hindtibia with orange-white scales on outer and upper surface. Female: unknown.

Male genitalia (Figs. 52, 53): Uncus slightly convex at middle of distal margin, with 2-3 long setae on dorsal surface, anterior margin deeply emarginate. Gnathos stout, apex acute. Valva greatly exceeding apex of uncus; ventral free lobes short, close to each other at base. Vinculum sharply pointed at base, with short projection outwardly; saccal region rather flat. Lobes of sicae asymmetrical, far from each other at base; left one digitate, short; right one long, with sharply pointed apex. Aedeagus very stout, with well-sclerotized lateral and dorsal lobes; lacking cornutus.

TYPE. Holotype: ♂, Nantou Co., Meifeng, 30 km S Tayuling, 2,200 m, Taiwan, 1-8. VI. 1980 (D. Davis), gen. prep. USNM-87355/Park. Type is in USNM.

DISTRIBUTION. Taiwan.

HOST. Unknown.

***loxospila* group**

Dichomeris loxospila is the only member of the species group in Taiwan. It is somewhat similar to the *rasilella* group superficially, but is separated from the latter by the presence of a long lateral lobe arising from the vinculum, and two heavily sclerotized, bifid lobes arising from the zone of the aedeagus.

***Dichomeris loxospila* (Meyrick) (Figs. 54, 55, 89, 111, Pl. F-34)**

Cymotricha loxospila Meyrick, 1932, Exot. Microl., 4: 203; Gaede, 1937: 457; Clarke, 1969: 526. pl. 262, fig. 4.

Dichomeris loxospila; Kanazawa & Heppner, 1992: 71. (Type: ♀, Taihoku, Taiwan, BMNH-8602/Clarke).

DESCRIPTION. Forewing length, 7.2-7.6 mm. Second segment of labial palpus (fig. 111) thickened ventrally, with scale tuft dorsally. Forewing pale grayish orange, with a large, dark-fuscous median patch near middle of cell and another small one at the end of cell; postmedian line yellowish white, curved outwardly; R_3 connated with R_{4+5} ; R_5 separated from near end of R_4 .

Male genitalia (Figs. 54, 55): Uncus slightly convex at middle on distal margin. Gnathos relatively strong; culcitula extremely small. Valva not reaching apex of uncus; ventral free lobe digitate, relatively stout. Vinculum evenly slender; lateral lobes arising at $1/5$ length, as long as ventral free lobe; saccal region almost straight. Sicae almost symmetrical, arcuate inwardly, with two denticles on mesial margin near middle. Aedeagus stout, as long as genitalia, with complicated lateral lobes as figured; dorsal lobe long, tongue shaped, with obtuse apex.

Female genitalia (Fig. 89): Distal part of 8th tergum weakly sclerotized, caudal margin rounded. Two lateral bean shaped plates developed between 8th segment and antrum. Antrum very broad, composed of various sclerotized ridges as shown in the figure. Ductus bursae with heavily sclerotized ridges extending into corpus bursae. Corpus bursae ovate, large, membranous; lacking signum.

MATERIAL EXAMINED. <Taiwan>. 1 ♂, Taipei Co., Taihoku, 1. IX. 1935 (S. Issiki), gen. prep. USNM-11562/Hodges; 1 ♂, same locality, 2. X. 1933 (S. Issiki); 1 ♀, no date label, Issiki leg., gen. prep. USNM-11563/Hodges; 1 ♂, Nantou Co., Sunmoon Lake, 760 m, Taiwan, 20-25. VI. 1980 (D. Davis); 1 ♀, Tainan Co. 250 m, S Kwanzuling, Taiwan, 26-28. VI. 1980 (D. Davis).

DISTRIBUTION. Taiwan (endemic).

HOST. Unknown.

***rasilella* group**

Dichomeris rasilella is the only member of the species group in Taiwan. The group

is evolved rather separately from the other species groups. It is characterized by the following: forewing moderately broad, male without scale tuft arising from mesothoracic anepisternum on mesothorax; 2nd segment of labial palpus thickened ventrally, with dorsal scale tuft, 3rd segment somewhat thickened, hindwing with cubital pecten; male genitalia with rather small sicae, saccal region with a strong break. Widely distributed in Palearctic region.

***Dichomeris rasilella* (Herrich-Schäffer)** (Figs. 56, 57, 92, 112, Pl. F-35)

Anacamptis rasilella Herrich-Schäffer, 1855, Schmett. Eur., 5: 202.

Brachmia rasilella; Rebel, 1901: 157

Gomphocrates rasilella: Meyrick, 1925: 184; Caradja, 1931: 68; Gaede, 1937: 546

Uliaria rasilella; Dumont, 1921: 329; Issiki, 1957: 39, pl. 5, fig. 161; Saito, 1969: 111, fig. 213; Moriuti, 1982: 1/286, 2/215, pl. 13: 47; Park, 1983: 505, fig. 167. (Type locality: Hungary).

DESCRIPTION. Forewing length, 8.5-9.0 mm. Second segment of labial palpus (fig. 112) much thickened with appressed scales beneath, and rough scale tuft above; 3rd segment nearly as long as 2nd, slender. Ocellus present. Forewing ground color pale gray, uniformly suffused with dark-gray scales; dark-gray, narrow fascia well developed along margin from before apex to tornus; vein R5 absent.

Male genitalia (Figs. 56, 57): Uncus relatively large, slightly dilated distally. Gnathos strongly curved. Valva greatly exceeding apex of uncus. Vinculum slender, expanding before middle and narrowed basally; lacking lateral lobes. Sicae somewhat clavate; right lobe slightly longer than left one. Aedeagus stout, about 4/5 length of genitalia, with a straight rodlike lateral lobe.

Female genitalia (Fig. 92): Apophyses anteriores about 1/2 length of apophyses posteriores. Ductus bursae relatively short, about 1/2 length of corpus bursae, with a large and a small triangular sclerite ventrally; ductus seminalis arising from posterior part of ductus bursae. Corpus bursae oblong; lacking signum; accessory bursa arising from anterior 3/4 length ventrally.

MATERIAL EXAMINED. <Taiwan>: 1♂, Nantou Co., Tungpu, 1,150 m, 1. VII. 1985 (J. Heppner & H. Wang). <Japan>: 1♀, Osaka, early VII. 1932 (S. Issiki); 2♀, Sobosan, Kyushu, 3-5. VII. 1931 (S. Issiki); 2♂, 1♀, Funakoshi, Yokosaki, 15. VI. 1952 (H. Inoue); 1♂, same locality, 14. IX. 1953 (H. Inoue); 1♂, Ikeda, Kinki, 16. VIII. 1950 (S. Issiki); 1♂, 1♀, Hoki, Seibu, Honshu, 12-14. VII. 1950 (S. Issiki); 1♀, Iwawakisan, Kinki, 16. IX. 1950 (S. Issiki); 1♀, Sakai, Osaka, Kinki, 31. VIII. 1954 (S. Issiki); 1♂, Niyonoshita, Hakone, 31. VIII. 1956 (H. Inoue); 1♂, Makiosan, Osaka, Kinki, 22. VII. 1959 (T. Takoma); 1♂, Tokai, Izo Ito, Honshu, 18. VIII. 1974 (S. Issiki), gen. prep. USNM-11604/Hodges; 1♀, Tokai, 18. VI. 1975 (S. Issiki), gen prep. USNM-11605/Hodges; 1♂, Izu, Ito, Tokai, 7. VI. 1976 (S. Issiki).

DISTRIBUTION. Taiwan, Japan (Honshu, Kyushu), Korea, China, Russian Far-East, Europe.

HOST. *Artemisia princeps* var. *orientalis* H. (Asteraceae) has been reported from Japan (Saito, 1969).

***autometra* group (= *citrifoliella* group)**

Dichomeris autometra is a member of the *citrifoliella* group as defined by Hodges (1986). The group is characterized by the 2nd segment of labial palpus thickened with scales ventrally and with fairly strong dorsal scale tuft; lacking metallic scales on head, thorax, and wings; forewing with R_3 separate from R_{4+5} , CuA_1 and CuA_2 stalked; hindwing with cubital pecten; male genitalia with the sicae almost symmetrical, joined for a short distance; aedeagus with one or two slender lobes from the zone; lacking cornutus; papillae anales heavily sclerotized. *Dichomeris autometra* is the only species of the group in Taiwan. *Dichomeris blanchardorum* Hodges and *citrifoliella* (Chambers) occur in North America.

***Dichomeris autometra* (Meyrick), comb. nov. (Figs. 64, 65, 85, 113, Pl. F-36)**

Cymotricha autometra Meyrick, 1934, in Caradja and Meyrick, Deut. Ent. Z. Iris, 48: 34; Gaede, 1937: 455; Clarke, 1969: 522, pl. 260, fig. 1. (Type: 1♂, Kwanhsien, China, BMNH-8619).

DESCRIPTION. Forewing length, 6.0-6.3 mm. Antenna with sensory scales ventrally in male. Ocellus absent. Second segment of the labial palpus (fig. 113) thickened ventrally, with erect scale tuft dorsally. Forewing with R_1 and R_3 stalked; CuA_1 and CuA_2 short stalked.

Male genitalia (Figs. 64, 65): Gnathos relatively slender. Valva exceeding apex of uncus; ventral free lobe short, stout. Vinculum relatively slender, about equal to length of tegumen plus uncus; lacking lateral lobes; with a pair of membranous lobes arising from inner margin at 2/3 length; saccal region emarginate at base. Sicae symmetrical, joined for a short distance; mesial margin U-shaped; lobes relatively short, about 1/2 length of vinculum. Aedeagus with a heavily sclerotized slender lateral lobe on right side; internal lobe weakly developed, short.

Female genitalia (Fig. 85): Apophyses anteriores about 1/2 length of apophyses posteriores. Ductus bursae with irregularly shaped, sclerotized ridges on dorsolateral wall; ductus seminalis arising from distal part of ductus bursae. Corpus bursae large, ovate, membranous; lacking signum; accessory bursa arising from anterior 1/3 length of corpus bursae.

MATERIAL EXAMINED. <Taiwan>: 1♂, Taipei Co., Taihoku, 1. V. 1946 (S. Issiki), gen. prep. USNM-11617/Hodges; 1♂, Taoyan Co., Suiryuto, 25. V. 1933 (S. Issiki), gen. prep. USNM-11619/Hodges; 1♀, Taipei Co., Sinten, 3. V. 1934 (S.

Issiki); 1?, Taipei Co., Sozan, 10. VI. 1934 (S. Issiki); 2♂, 2♀, Nantou Co., Lu-Shan, ca. 30 km E Wushe 1000 m, 27-31. V. 1980 (D. Davis); 2♂, Kaohsiung Co., Chiahsien, ca. 300 m, Taiwan, 3-8. VII. 1980 (D. Davis); 2♀, KaoHsiung Co. 1-2 Km W Meishan, 29. VI. 2. VII. 1980 (D. Davis); 1♂, Pingtung Co., Kenting Bot. Garden, 22-25. VII. 1980 (D. Davis); 1♂, 1♀, Nantou Co., Lienhuachi Exp. For. stn. 15 km SW Puli 750 m, 22-26. V. 1980 (D. Davis); 1♂, Pintung Co., Kenting Park, 1.-5. IX. 1983 (J. Heppner & H. Wang).

DISTRIBUTION. Taiwan (endemic).

HOST. According to the label on a specimen by Issiki, the larva feeds on *Lithospermum* sp. (Boraginaceae).

cymatodes group

Dichomeris cymatodes is the only member of the species group in Japan and Taiwan. The group is characterized by the lack of an ocellus, forewing relatively broad, male without scale tuft arising from mesothoracic anepisternum, and particularly male genitalia lacking sicae. *D. synclepta* (Meyrick, 1938), which was described from Likiang, China (type in BMNH, gen. prep. 8872/Clarke) is a member of this group, because it lacks sicae.

Dichomeris cymatodes (Meyrick), comb. nov. (Figs. 62, 63, 93, 114, Pl. G-38)

Trichotaphe cymatodes Meyrick, 1916, Exot. Microl. 1: 584.

Cymotricha cymatodes; Meyrick, 1925: 188; Gaede, 1937: 456; Clarke, 1969: 522, pl. 260, figs. 4a-b. (Type: ♂, Margherita, Assam, BM-8620).

DESCRIPTION. Forewing length, 7.8-9.0 mm. Antenna with short sensory scales beneath. Second segment of labial palpus (fig. 114) thickened with appressed scales ventrally and with well-developed scale tuft dorsally; 3rd segment slender, as long as 2nd. Ocellus present. Anterior margin of forewing strongly arched at 1/3 length, with anteriorly expanded, long fringe beyond costal mark; discal spot near middle, another small spot beneath it. Hindwing without cubital pecten.

Male genitalia (Figs. 62, 63): Gnathos relatively short. Valva approximately attaining apex of uncus; ventral free lobe long, digitate. Vinculum broad, lacking lateral lobes. Sicae absent. Aedeagus relatively stout; internal lobe sclerotized, long; cornutus small, heavily sclerotized.

Female genitalia (Fig. 93): Dorsodistal part of 8th segment sclerotized, with round posterior margin. Apophyses anteriores very short, about 1/5 length of apophyses posteriores. Antrum long, with two transverse and a longitudinal sclerotized fold. Ductus bursae membranous, with sclerotized ridge; ductus seminalis from basal part of antrum dorsolaterally, with a well-sclerotized ring near base. Corpus bursae with

numerous minute spicules on ventral surface; lacking signum; accessory bursa arising from middle of corpus bursae ventrolaterally.

MATERIAL EXAMINED. <Taiwan>. 1♂, Taichung Co., Baibara, 23. II. 1943 (S. Issiki), gen. prep. no. USNM 11576/Hodges; 1♀, Taipei Co., Taihoku, 31. V. 1946 (S. Issiki), gen. prep. no. USNM-11577/Hodges; 1♀, Taihoku, 20. V. 1946 (S. Issiki); 1♀, Nantou Co., Sunmoon lake, 760 m, 20-25. VI. 1980 (D. Davis)

DISTRIBUTION. Taiwan (new record), N. Vietnam (Tonkin), India (Assam).

HOST. Unknown.

hoplocrates group

Dichomeris hoplocrates, *lividula*, and *linealis* comprise the species group in Japan and Taiwan. Most of the known species occur in the Oriental and eastern Palearctic Regions, including N. India, Srilanka, Taiwan, Japan and Korea (*cusps* Park from Korea belongs to this group). The species group is characterized by the leaden-blue, metallic forewing and single-lobed sicae in the male genitalia.

Key to the species of the *hoplocrates* group

1. Forewing length more than 8.0 mm; cilia around apex and along termen forming an yellowish-orange row at basal 1/3; male genitalia- free ventral lobe of valva very stout, about 1/2 length of valva, lateral lobe of vinculum stout *lividula*
- Forewing length less than 7.5 mm; base of cilia not yellowish-orange; male genitalia- ventral free lobe of valva slender or short; lateral lobe of vinculum slender 2
2. Forewing intensely metallic leaden-blue; a well-developed fuscous streak arising on anterior margin at 1/3 length and extending obliquely toward tornus; postmedian line absent; male genitalia- free ventral lobe of valva slender, about 1/3 length of valva *hoplocrates*
- Forewing with less leaden-blue metallic color; without fuscous streak; an inwardly curved yellowish-white postmedian line clearly developed; male genitalia- free ventral lobe of valva short, stout, less than 1/4 length of valva *linealis*

Dichomeris hoplocrates (Meyrick), **comb. nov.** (Figs. 66, 67, 95, 115, Pl. G-39)

Tricyanaula hoplocrates Meyrick, 1932, Exot. Microl. 4: 198; Issiki, 1957: Gaede, 1937: 371; Clarke, 1969: (7) 519, pl. 259, fig. 1; Saito, 1969: 115, fig. 221; Moriuti, 1982: 1/281, 2/214, fig. 13:21. (Type: ♀, Tokyo, Japan, BMNH-8405).

DIAGNOSIS. The species was described from Tokyo, Japan, based on single male specimen. It closely resembles the Indian species, *Dichomeris enoptrias* (Meyrick, 1911), **comb. nov.** Characters of *hoplocrates* separable from *enoptrias* are as following:

forewing shining, metallic leaden-blue, with well-developed broad longitudinal streaks running obliquely from anterior margin at $1/3$ length to tornus, with a small whitish strigula at $3/4$ length of anterior margin; lacking yellowish-orange line along margin around apex and lacking yellowish-orange dashes from termen.

DESCRIPTION. Forewing length, 6.2-7.5 mm.

Male genitalia (Figs. 66, 67): Uncus relatively long, slightly excavated on lateral margin with 4-6 strong setae before $1/2$ length. Valva slightly dilated beyond $2/3$ length; free ventral lobe digitate, almost straight. Vinculum with long lateral lobes near middle. Sicae with one lobe, about equal to length of lateral lobe of vinculum.

Aedeagus relatively slender, lacking lateral lobes; lacking cornutus.

Female genitalia (Fig. 95): Papillae anales with numerous short spinelike setae along distal margin (*enoptrias* lacks these setae). Apophyses posteriores relatively long. Dorsodistal margin of 8th segment emarginated mesially (that of *enoptrias* with rounded distal margin).

MATERIAL EXAMINED. <Japan>: 1♂, Tokyo, 10. VIII. 1915 (S. Issiki), gen. prep. USNM-87344/park; 1?, Nagayu, Kyushu, 6. VII. 1937 (S. Issiki); 1♀, Satamisaki, Kyushu, 20. V. 1952 (S. Issiki); 1♂, Takayama, Tyub-Gifu, Honshu 23. VII. 1954 (T. Kodama; 1♀ (abdomen missing), Kii, Hashimoto, 28. VII. 1955 (S. Issiki); 1♀, Kii, Kinki, Honshu, 1. VI. 1956 (S. Issiki), reared from *Rubus sieboldi*; 1♂, Anoomaru Yamato, Honshu, 24. VI. 1957 (T. Yasuda); 1♂, Kii, Kinki, Honshu, 8. VI. 1961, (S. Issiki); 1♂, 1♀, Kii, 7. VI. 1961 (S. Issiki), gen. prep. USNM-87343/(♀) Park.

HOSTS. *Duchesnea chrysantha* (Zoll. & Morr.) Miq. (Rosaceae) was reported from Japan (Moriuti, 1982). According to the label of a specimen by Issiki (1956), the larva feeds on *Rubus sieboldi* (Blume) (Rosaceae).

DISTRIBUTION. Japan (Hokkaido, Honshu, Shikoku, Kyushu).

REMARK. Meyrick (1918) described *Zalithia viridescens* from Assam (Silbong), based on a male, after he had described *Strobisia enoptrias* from Khasis, based on females. In 1929 he suggested that these species were the opposite sexes of the same species. We consider that each is a valid species because the hindwing of the type specimen of *viridescens* is pale gray on the basal $3/4$ and suffused dark fuscous on the distal $1/4$. The hindwing is uniformly gray in *enoptrias*. Meyrick (1935) proposed *Hyperecta* for *viridescens* Meyrick. The female genitalia (Clarke, 1969; pl. 264-3a, 3b) indicate that *viridescens* is a species of *Dichomeris* (*Dichomeris viridescens*, **comb. nov.**); thus, *Hyperecta* is a junior subjective synonym of *Dichomeris*, **syn. nov.**

Dichomeris linealis Park & Hodges, sp. nov. (Figs. 68, 69, Pl. G-40)

DIAGNOSIS. *Dichomeris linealis* is extremely close to the following new species, *lividula*, but generally much smaller than the latter. It can easily be differentiated by

having much shorter free ventral lobe of valva in the the male genitalia.

DESCRIPTION. Forewing length, 7.4 mm. Second segment of labial palpus yellowish white, suffused with grayish scales on inner surface, grayish brown on outer surface; 3rd segment slightly shorter than 2nd, evenly grayish brown. Ground color of forewing rather light brown, a yellowish-white postmedian line clearly developed, a yellowish-white strigula at 3/4 length of anterior margin weakly developed. Female: unknown.

Male genitalia (Figs. 68, 69): Uncus similar to that of *lividula*. Gnathos slightly shorter, strongly bent before middle. Valva approximately attaining apex of uncus, ventral free lobe short, digitate, less than 1/4 length of valva. Vinculum slightly longer than length of tegumen plus uncus, rather convex, slender; lateral lobes stout, long, about 1/2 length of valva. Sicae tightly fused with ventral wall of aedeagus at base. Aedeagus slender, slightly shorter than length of genital capsule, with weakly sclerotized internal lobes; lacking cornutus; basal part short, about 1/4 length of aedeagus.

TYPE. Holotype: ♂, Taipei Co., Sozan, Taiwan, 10. VI. 1934 (S. Issiki), gen. prep. USNM-11616/Hodges. Type is in USNM.

DISTRIBUTION. Taiwan.

HOST. Unknown.

Dichomeris lividula Park & Hodges, sp. nov. (Figs. 70, 71, 96, Pl. G-41)

DIAGNOSIS. *Dichoimeris lividula* is closely related to *enoptrias* Meyrick, but it is normally larger than the latter. It can be differentiated from *enoptrias* by the less leaden-blue metallic color of the forewing, and separable from *viridescens* (Meyrick) by the male genitalia.

DESCRIPTION. Forewing length, 8.0-8.7 mm. Head and thorax purplish bronze; frons yellowish white. Second segment of labial palpus grayish orange on outer surface, yellowish white on inner surface; 3rd segment grayish brown, slightly shorter than 2nd. Forewing elongate, anterior margin almost straight; apex relatively pointed; termen oblique, slightly sinuate; ground color dark brown; two indistinct dark-fuscous streaks, 1st streak from base to middle longitudinally, 2nd from 1/4 length of anterior margin toward tornus; an oblique, white strigula at 3/4 length on anterior margin, edged by a triangular, dark-brown fascia; postmedian line indistinct, edged with dark-brown scales outwardly; apex obtuse. Cilia around apex and along termen forming a yellowish-orange line at 1/3 length, with black spot at apex of forewing, sometimes with 2-3 whitish-orange dashes from termen toward middle. Hindwing dark gray; cubital pecten well developed; termen oblique, faintly sinuate. Abdomen dark fuscous dorsally, yellowish white on ventral surface. Ventral surface of fore- and midlegs brownish gray. Hindtibia dark fuscous, with white band at middle and end on outer surface, yellowish white on inner surface.

Male genitalia (Figs. 70, 71): Uncus relatively long, slightly dilated distally, with 7-8 long, strong setae along lateral margin on basal half and short spinelike ones on ventral surface beyond middle; anterior margin triangularly emarginated. Gnathos slender; culcitula densely spinose with round distal margin. Valva relatively short, not reaching apex of uncus, dilated distally; ventral free lobe large, digitate, almost 1/2 length of valva. Vinculum longer than length of tegumen plus uncus; lateral lobes large, arising from near middle, longer than ventral free lobe; saccal region almost straight at base. Sicae with single lobe, tightly fused with ventral wall of aedeagus at base. Aedeagus stout, about 4/5 length of genitalia, membranous beyond zone, with well-sclerotized dorsal lobe; lacking cornutus; internal lobes weakly sclerotized.

Female genitalia (Fig. 96): Papillae anales with numerous, short spinelike setae along distal margin, a few scattered, long setae on ventral surface. Apophyses posteriores about 3/4 length of ductus bursae; apophyses anteriores very short. Distal margin of 8th tergum slightly concave mesially. Antrum widely opened basally, with heavily sclerotized lateral wall. Ductus bursae membranous; well-sclerotized bands on ventral wall extending from anterior part of antrum to near junction with corpus bursae; ductus seminalis arising from apex of membranous protrusion originating from anterior end of ductus bursae dorsally. Corpus bursae large, ovate, densely covered with long spicules on inner surface throughout; lacking signum; accessory bursa arising from ventral surface of anterior part of corpus bursae.

TYPES. Holotype: ♂, Hualien Co., Pianau-col, Taiwan, 10. VIII. 1943 (A. Mutuura), gen. prep. USNM-87346/Park. Paratype: 1♀, same locality as holotype, 9. VIII. 1943 (A. Mutuura), gen. prep. USNM-87347/Park. Types are in USNM.

DISTRIBUTION. Taiwan.

HOST. Unknown.

Unrecognized species

The following two species known from Japan are not in the collections available to us. *Telephila issikii* Okada is newly recognized from Korea. Both of the species are transferred to *Dichomeris*.

Dichomeris okadai (Moriuti), comb. nov.

Gaesa okadai Moriuti, 1982, Moths of Japan, 1/285, 2/215, figs. 10: 61, 243: 6, 258: 2, 3.

Dichomeris okadai was described from Japan. It is not included here because no specimens are available in the collection of the USNM. It probably represents an unrecognized species group based on the figures illustrated by Moriuti (1982).

Male and genitalia. See Moriuti (1982, figs. 258-2, 3).

DISTRIBUTION. Japan (endemic).

Dichomeris issikii (Okada), **comb. nov.**

Telephila issikii Okada, 1961, Pub. Ent. Lab. Univ. Osaka Pref. 6: 47-50, figs. 1-9; Moriuti, 1982: 1/285, 2/215, fig. 13: 40.

No specimens have been found in the USNM collection, and thus, it is not included in our study. *D. cyprophanes* (Meyrick, 1918), **comb. nov.**, which was described from South Africa, is closely related to *issikii*, especially in the shape of the sicae. Two males of *issikii* were newly recognized from Korea (Yongin, 21. V. 1989, W. S. Cho).

DISTRIBUTION. Japan, Korea (new record).

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We are indebted to J.B. Heppner, Florida State Collection of Arthropods, Gainesville, for allowing us to examine all specimens he collected during the last 10 years from Taiwan and for the loan of some valuable specimens. We are further indebted to the following individuals; Toshio Kumata (Hokkaido University, Sapporo, Japan); Kevin Tuck and Michael Shaffer (The Natural History Museum, London, U.K.); A. Gozmany (Hungarian National Museum of Natural History, Budapest, Hungary); Joel Minet (National Museum of Natural History, Paris, France); M.G. Ponomarenko (Institute of Biology and Pedology, Far Eastern Branch of Russian Academy of Sciences, Vladivostok, Russia); Yu-Cheng Chang (Taiwan Forestry Research Institute, Taipei, Taiwan) for providing information of this study or the loan of some type specimens. The first author, especially, wishes to acknowledge the cooperation of the Systematic Entomology Laboratory, USDA, the Department of Entomology, Smithsonian Institution, and the Department of Entomology, University of Maryland, for facilities, supplies, outstanding general support for my research during the stay in the USA.

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Plate A.

- 1, *Dichomeris harmonias* Meyrick;
- 2, *Dichomeris oceanis* Meyrick;
- 3, *Dichomeris fuscalis* Park et Hodges, sp. nov.
- 4, *Dichomeris ustalella* (Fabricius)
- 5, *Dichomeris tostella* Staudinger
- 6, *Dichomeris aomoriensis* Park and Hodges, sp. nov.

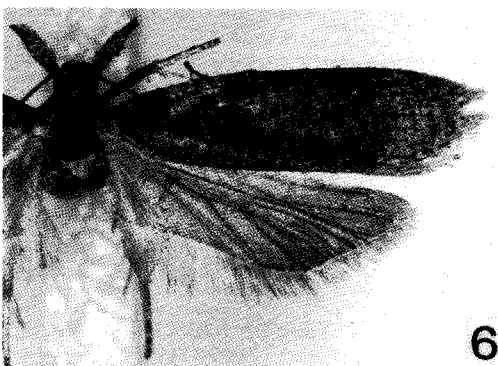
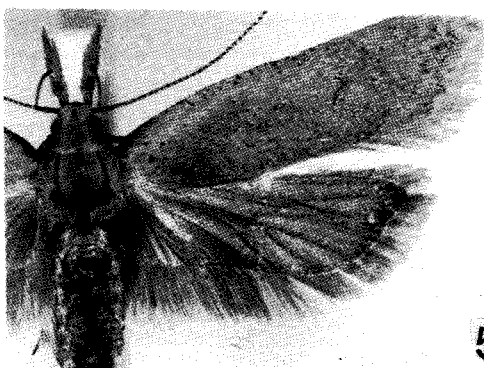
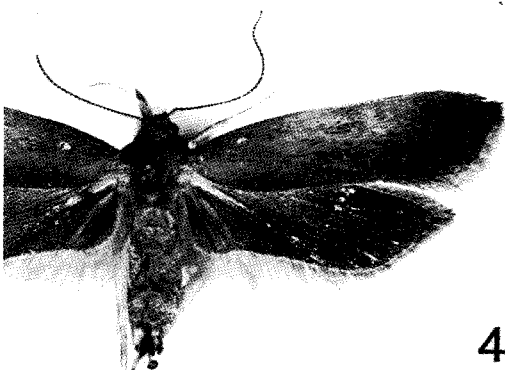
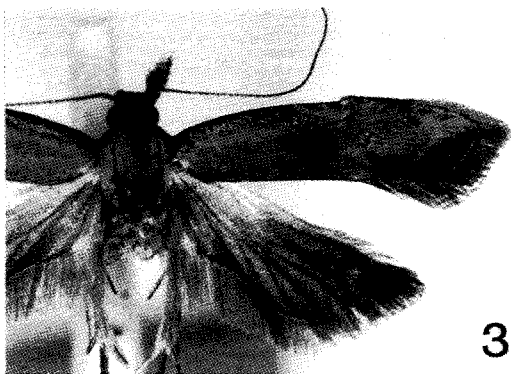
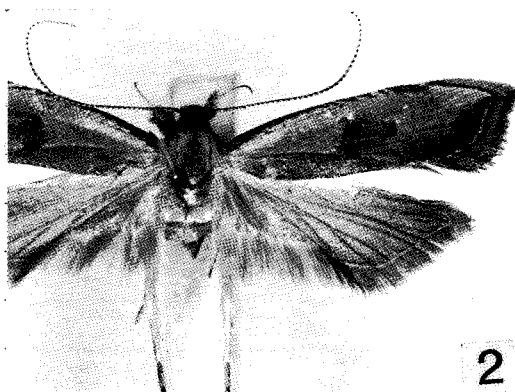
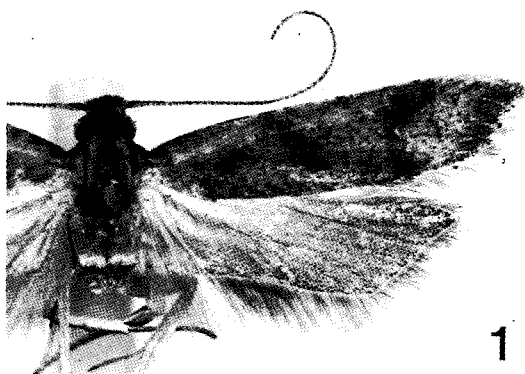


Plate B.

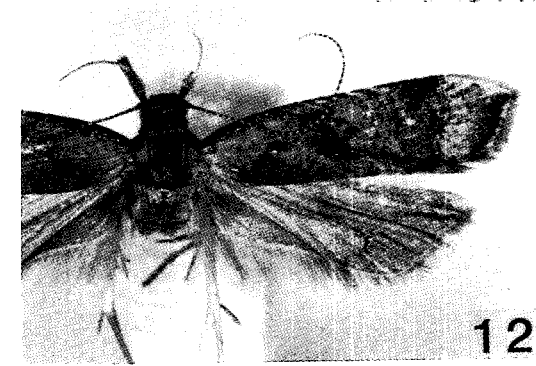
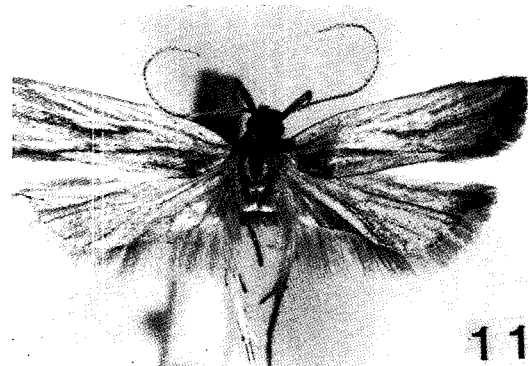
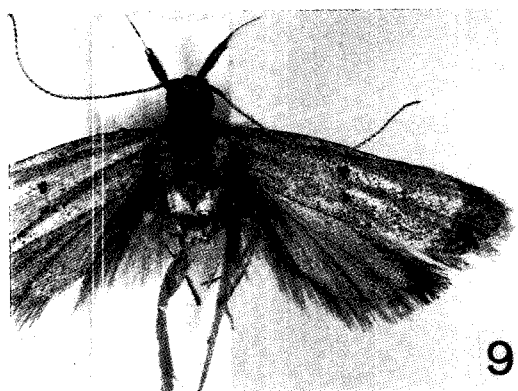
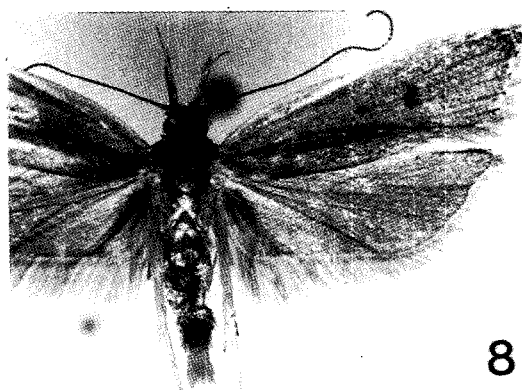
7, *Dichomeris symmetrica* Park and Hodges, sp. nov.8, *Dichomeris lushanae* Park and Hodges, sp. nov.9, *Dichomeris albula* Park and Hodges, sp. nov.10, *Dichomeris crambalaeas* (Meyrick)11, *Dichomeris pyrrschista* (Meyrick)12, *Dichomeris lespedezae* Park

Plate C.

- 13, *Dichomeris quercicola* Meyrick
14, *Dichomeris acuminata* (Staudinger)
15, *Dichomeris ferruginosa* Meyrick
16, *Dichomeris ochthophora* Meyrick
17, *Dichomeris ochreata* Park et Hodges, sp. nov.
18, *Dichomeris summata* Meyrick

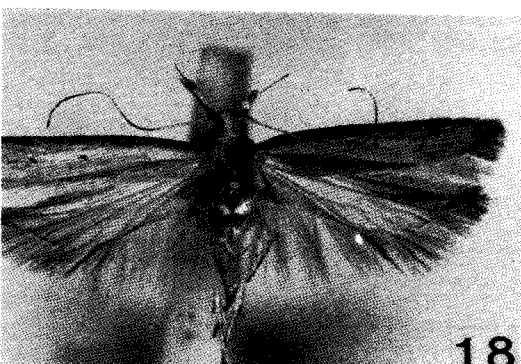
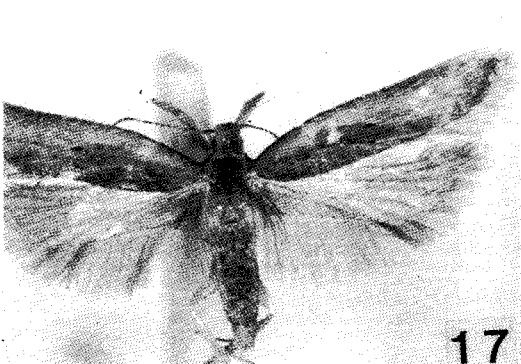
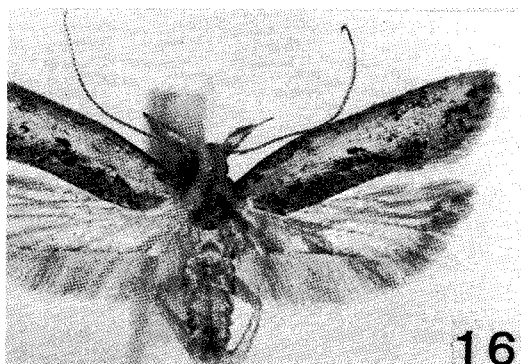
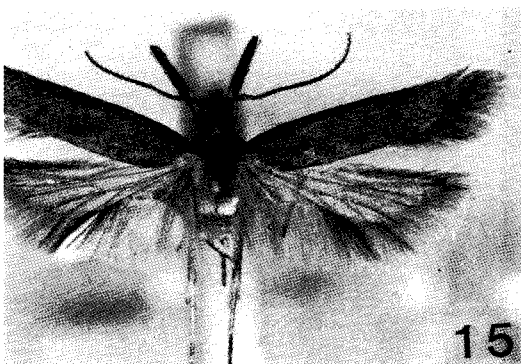
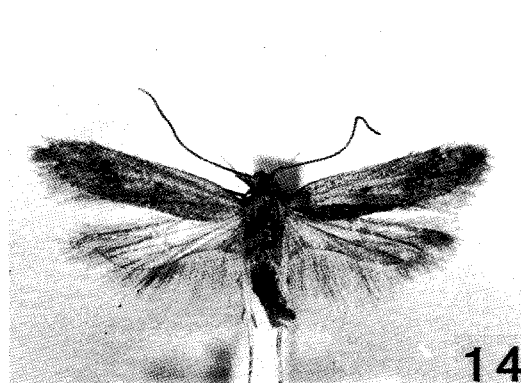
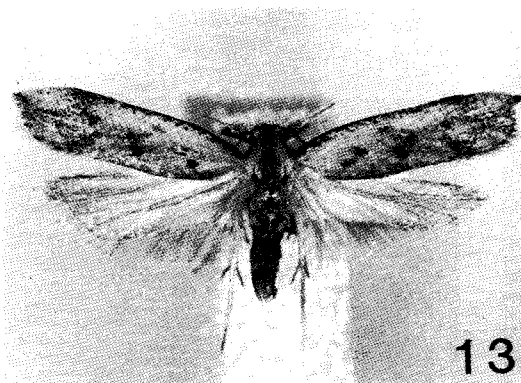


Plate D.

- 19, *Dichomeris leptosaris* Meyrick
20, *Dichomeris mitteri* Park
21, *Dichomeris davisi* Park et Hodges, sp. nov.
22, *Dichomeris orientis* Park et Hodges, sp. nov.
23, *Dichomeris horoglypta* Meyrick
24, *Dichomeris malacodes* (Meyrick)

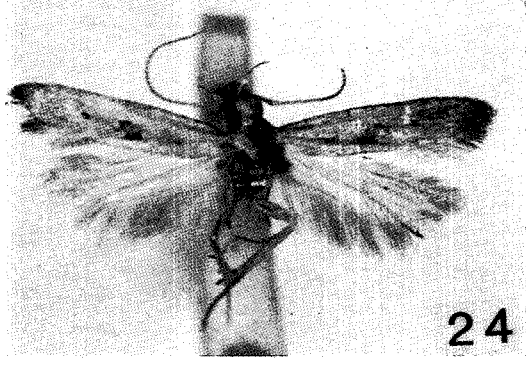
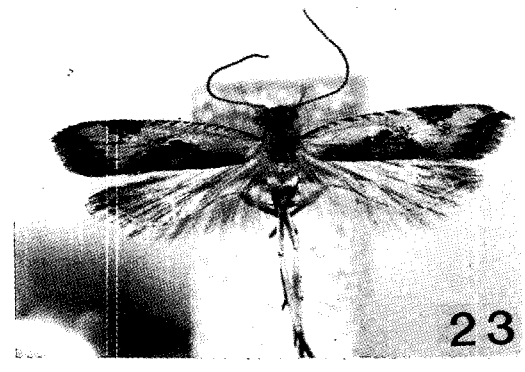
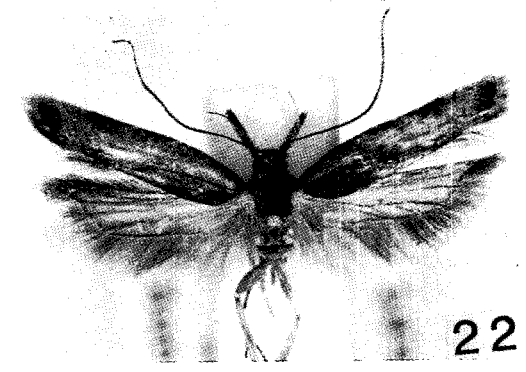
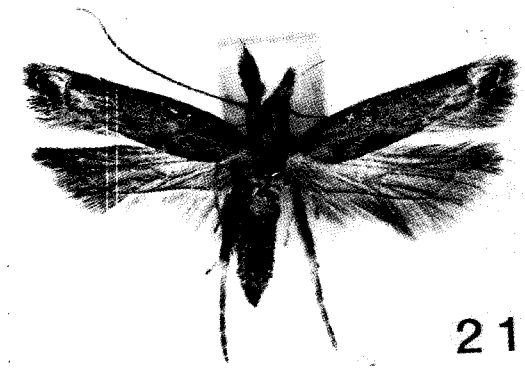
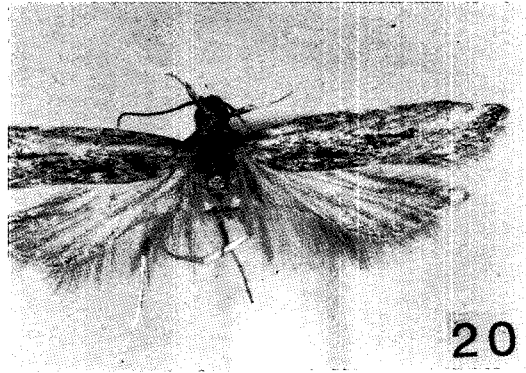
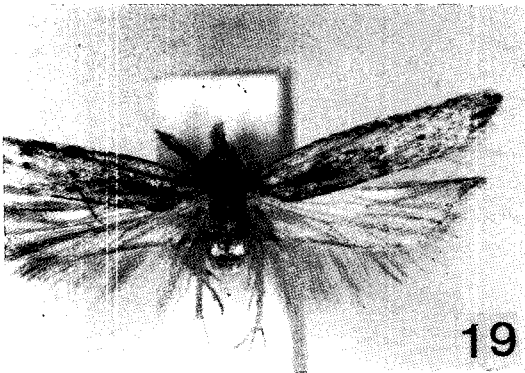


Plate E.

- 25, *Dichomeris microsphenia* (Meyrick)
26, *Dichomeris sparsellus* (Christoph)
27, *Dichomeris atomogypsa* (Meyrick)
28, *Dichomeris trilobella* Park & Hodges, sp. nov.
29, *Dichomeris angulata* Park & Hodges, sp. nov.
30, *Dichomeris oxycarpa* (Meyrick)

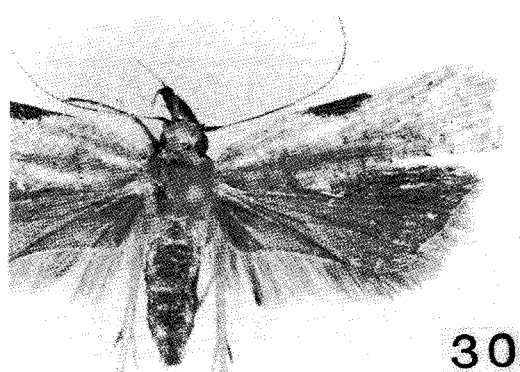
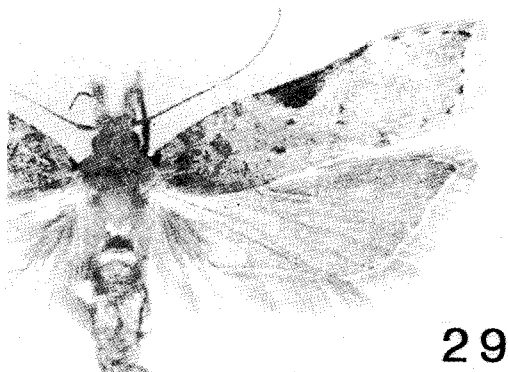
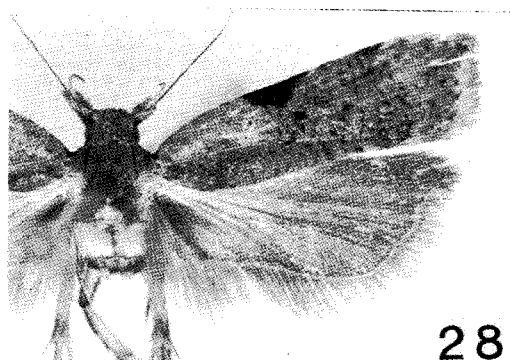
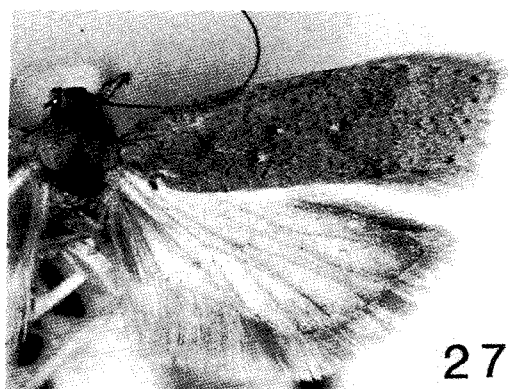
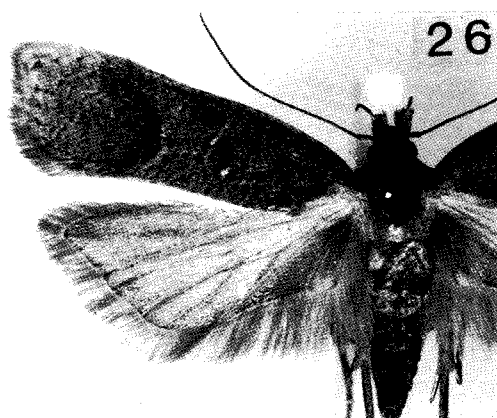
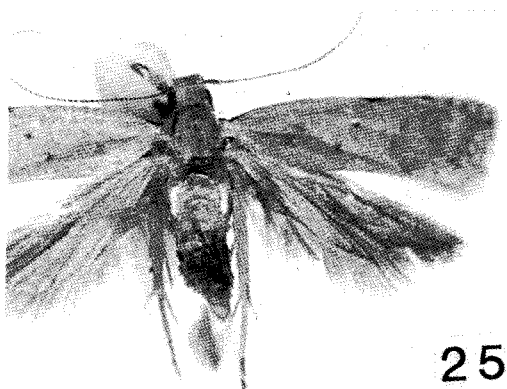


Plate F.

- 31, *Dichomeris picrocarpa* (Meyrick)
32, *Dichomeris taiwana* Park et Hodges, sp. nov.
33, *Dichomeris fusca* Park et Hodges, sp. nov.
34, *Dichomeris loxospila* (Meyrick)
35, *Dichomeris rasilella* (Herrich-Schäffer)
36, *Dichomeris autometra* (Meyrick)

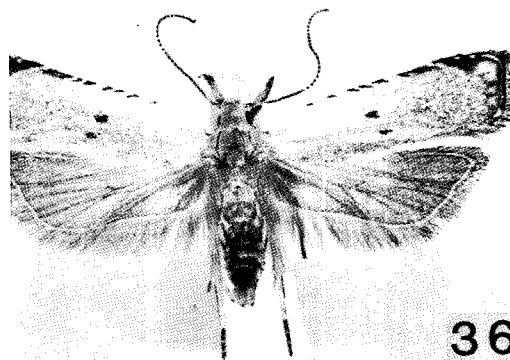
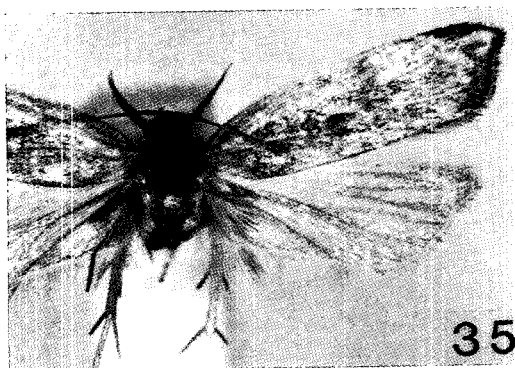
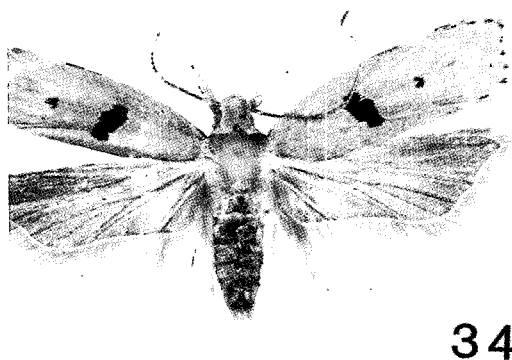
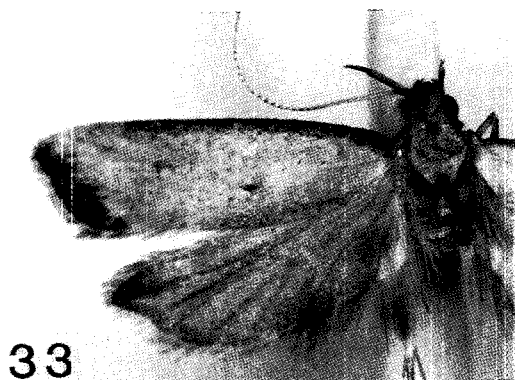
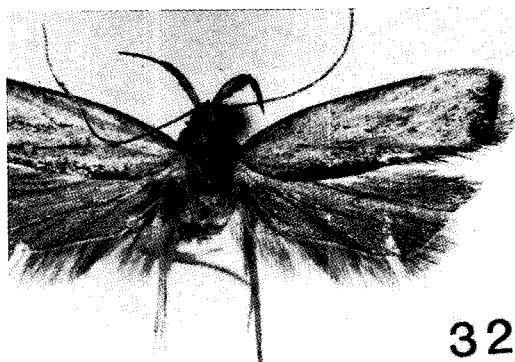
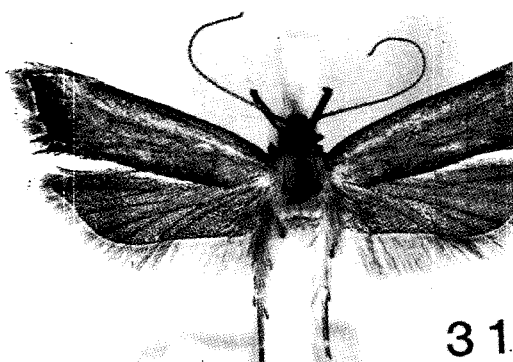
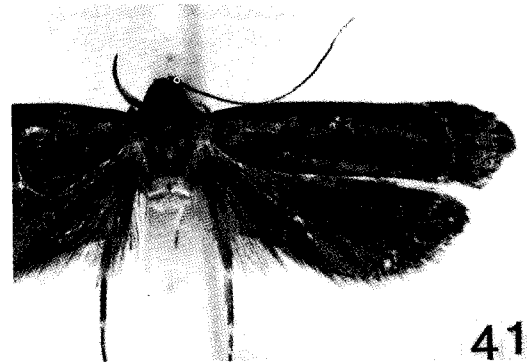
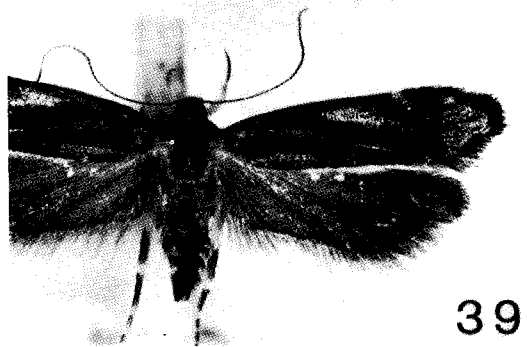
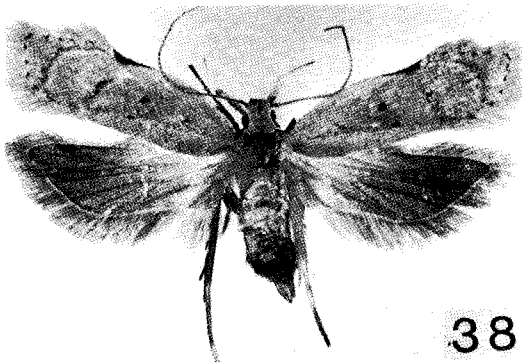
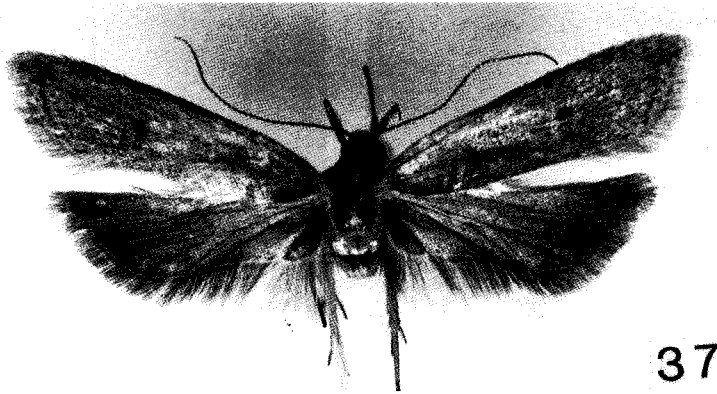
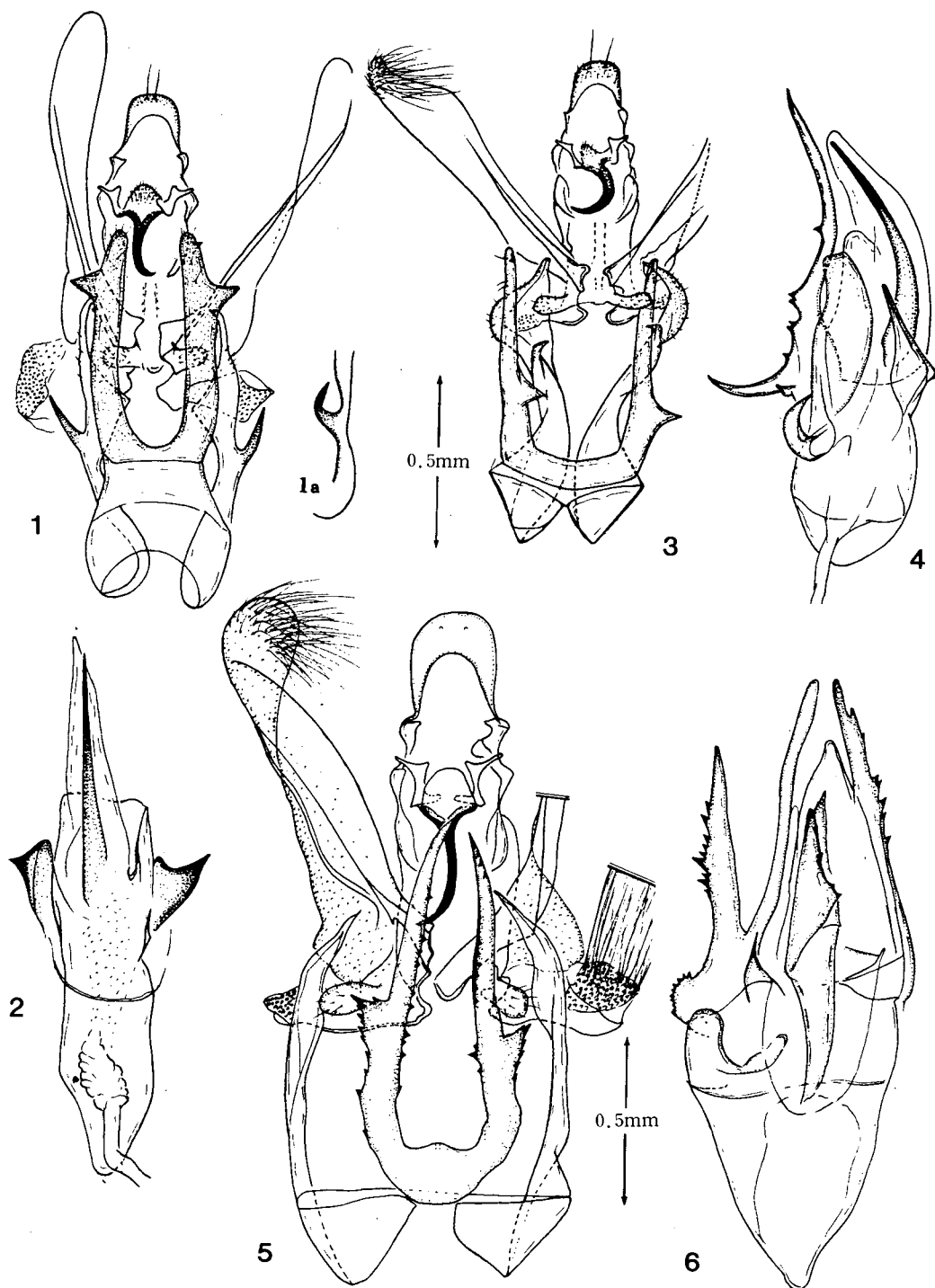


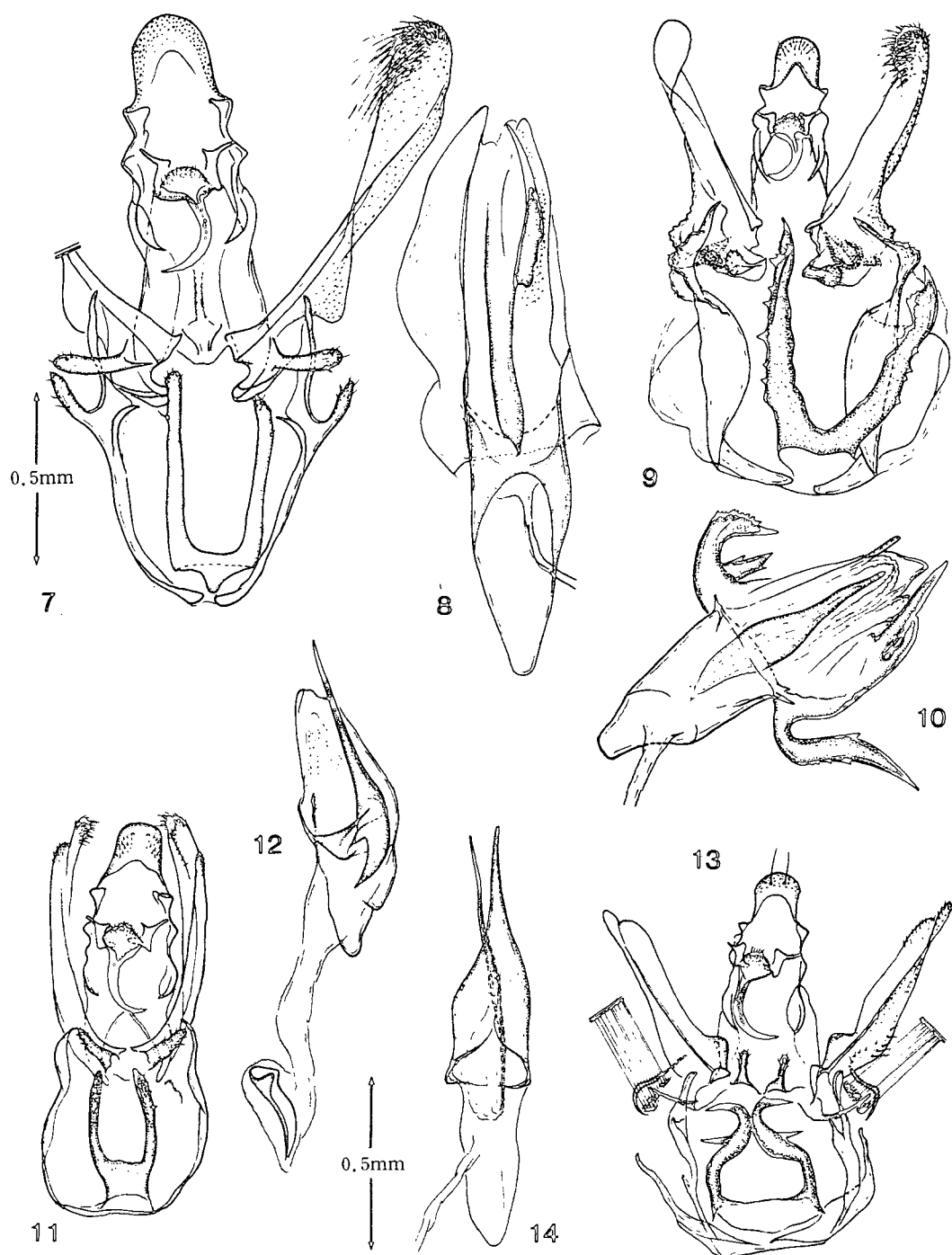
Plate G.

- 37, *Dichomeris lutea* Park & Hodges, sp. nov.
38, *Dichomeris cymatodes* (Meyrick)
39, *Dichomeris hoplocrates* (Meyrick)
40, *Dichomeris lividula* Park et Hodges, sp. nov.
41, *Dichomeris linealis* Park et Hodges, sp. nov.

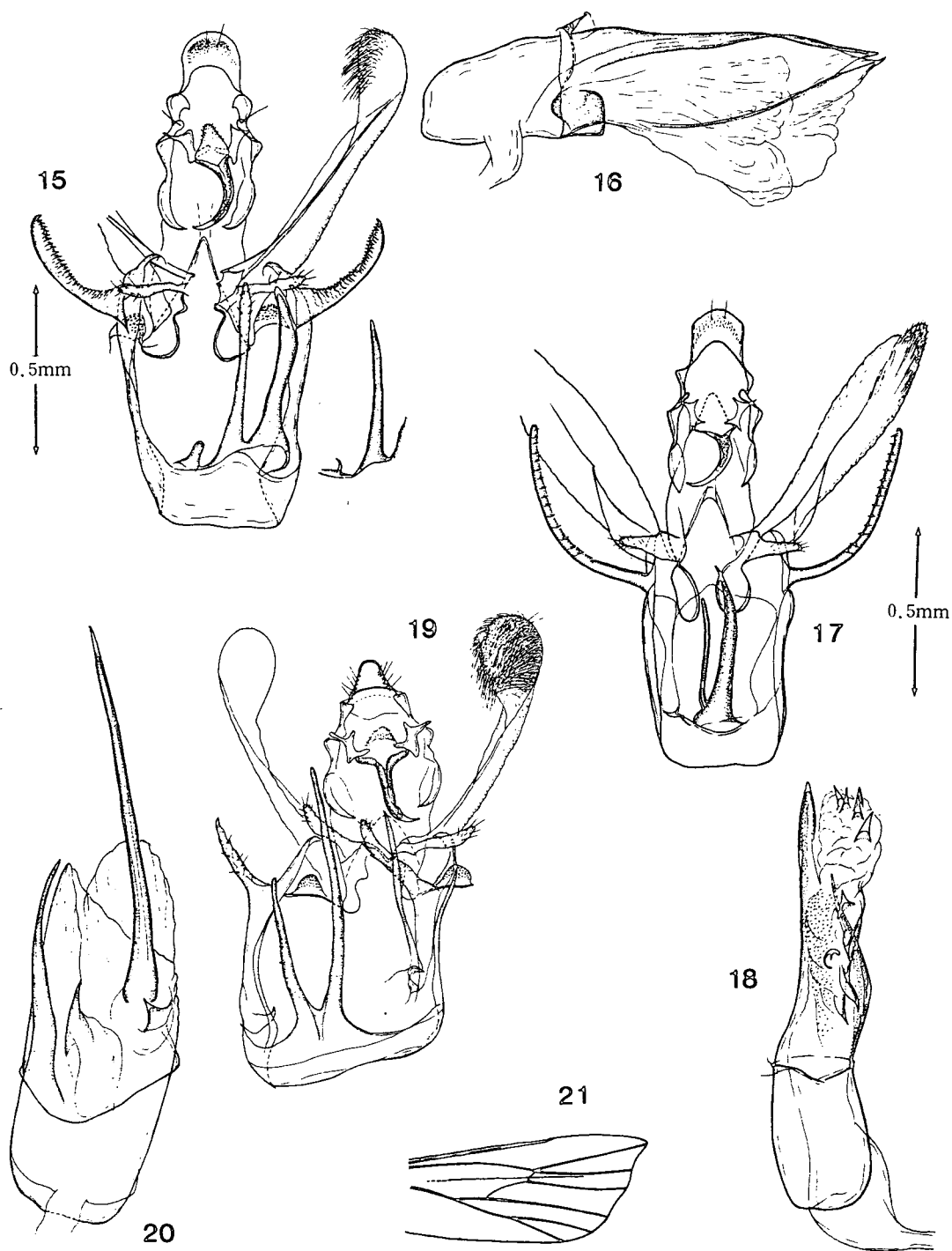




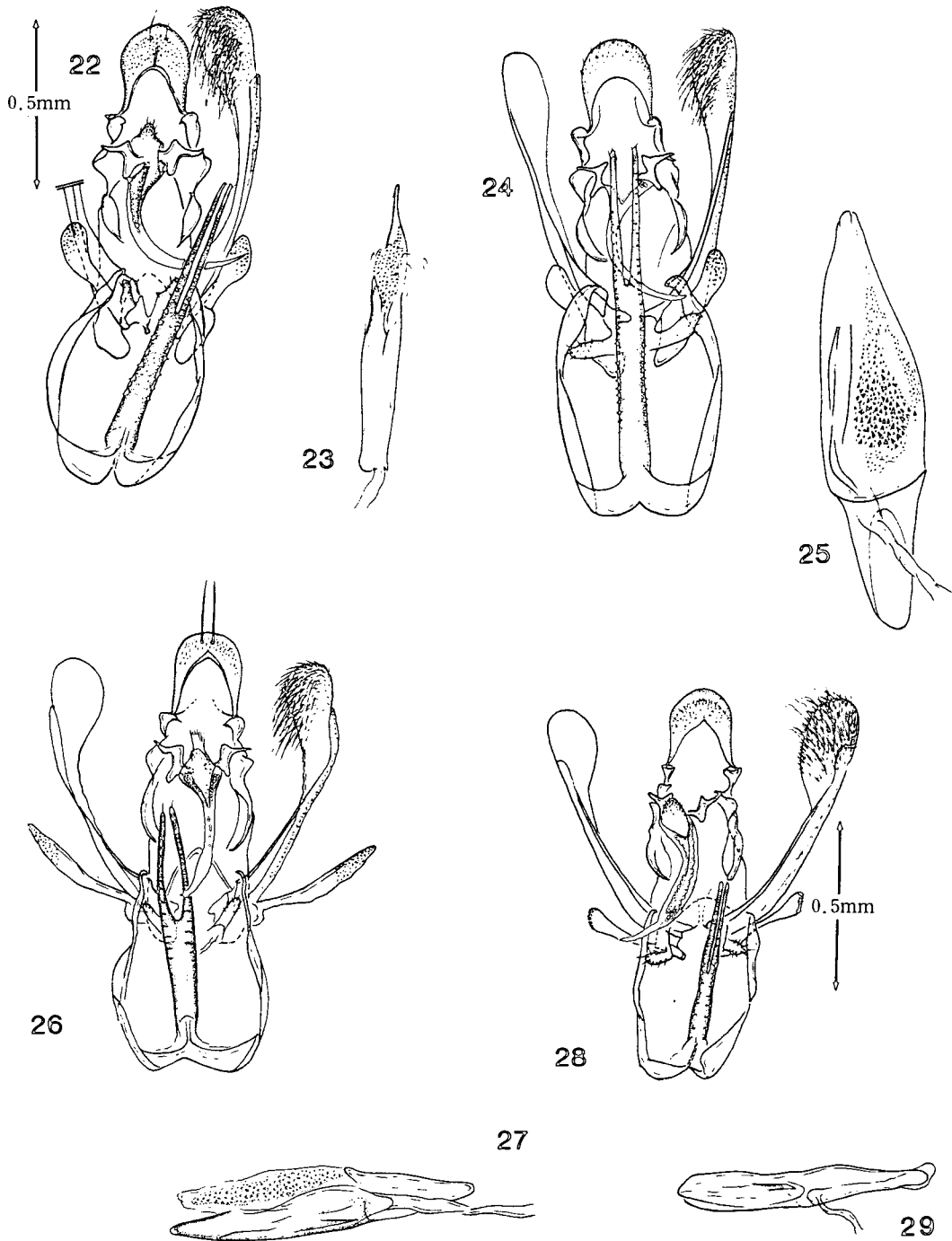
Figs. 1-6: 1, *Dichomeris oceanis* Meyrick (USNM-87335); 1a, lateral process of vinculum of Korean species; 2, ditto, aedeagus; 3, *Dichomeris fuscalis* Park et Hodges, sp. nov. (USNM-11683, holotype); 4, ditto, aedeagus; 5, *Dichomeris tostella* Staudinger (USNM-11589); 6, ditto aedeagus.



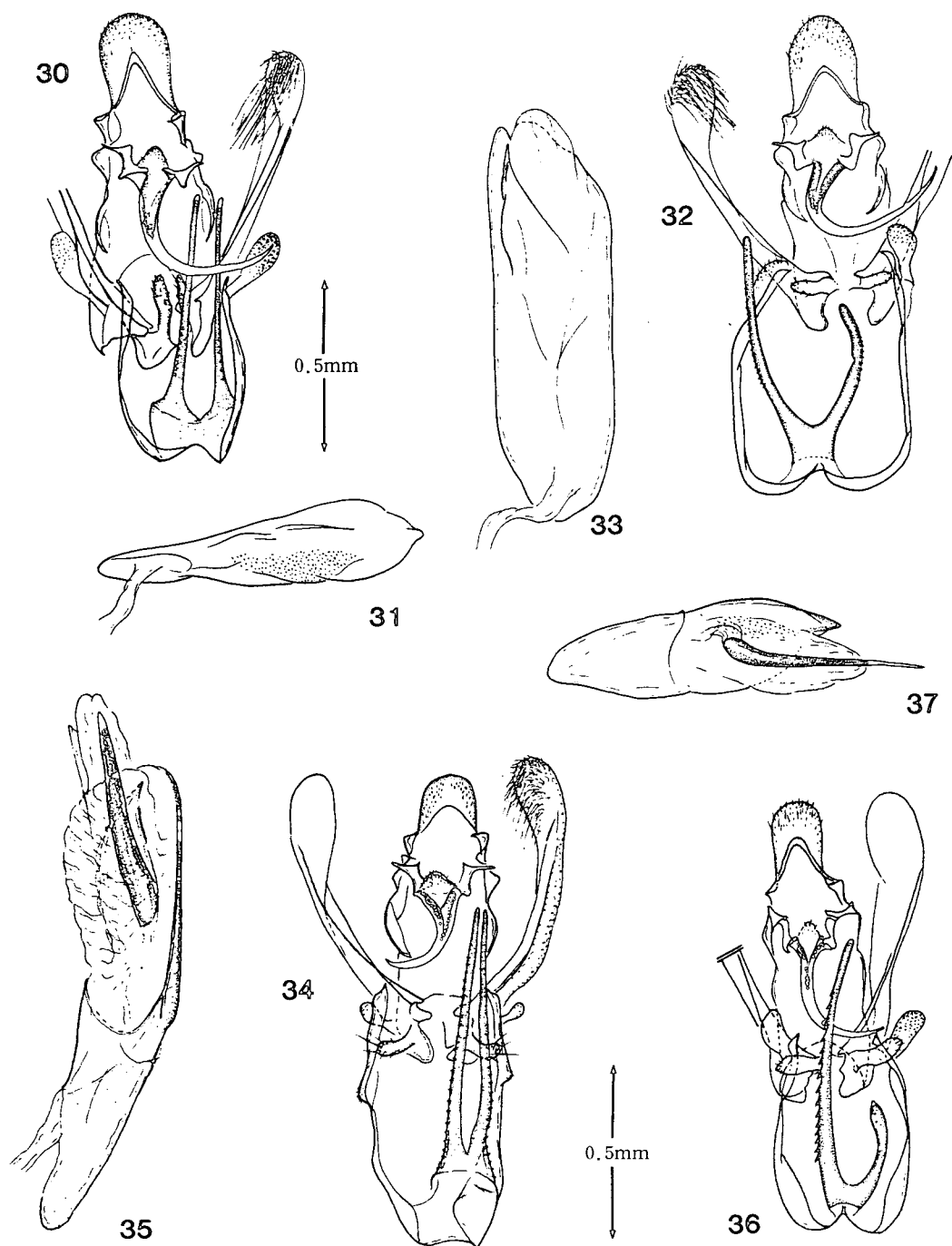
Figs. 7-14; 7, *Dichomeris ustalella* (Fabricius) (USNM-11588); 8, ditto aedeagus; 9, *Dichomeris aomoriensis* Park et Hodges, sp. nov. (CIS-1348); 10, ditto, aedeagus; 11, *Dichomeris symmetrica* Park et Hodges, sp. nov. (USNM-87351); 12, ditto aedeagus; 13, *Dichomeris malacodes* (Meyrick) (USNM-87350); 14, ditto, aedeagus.



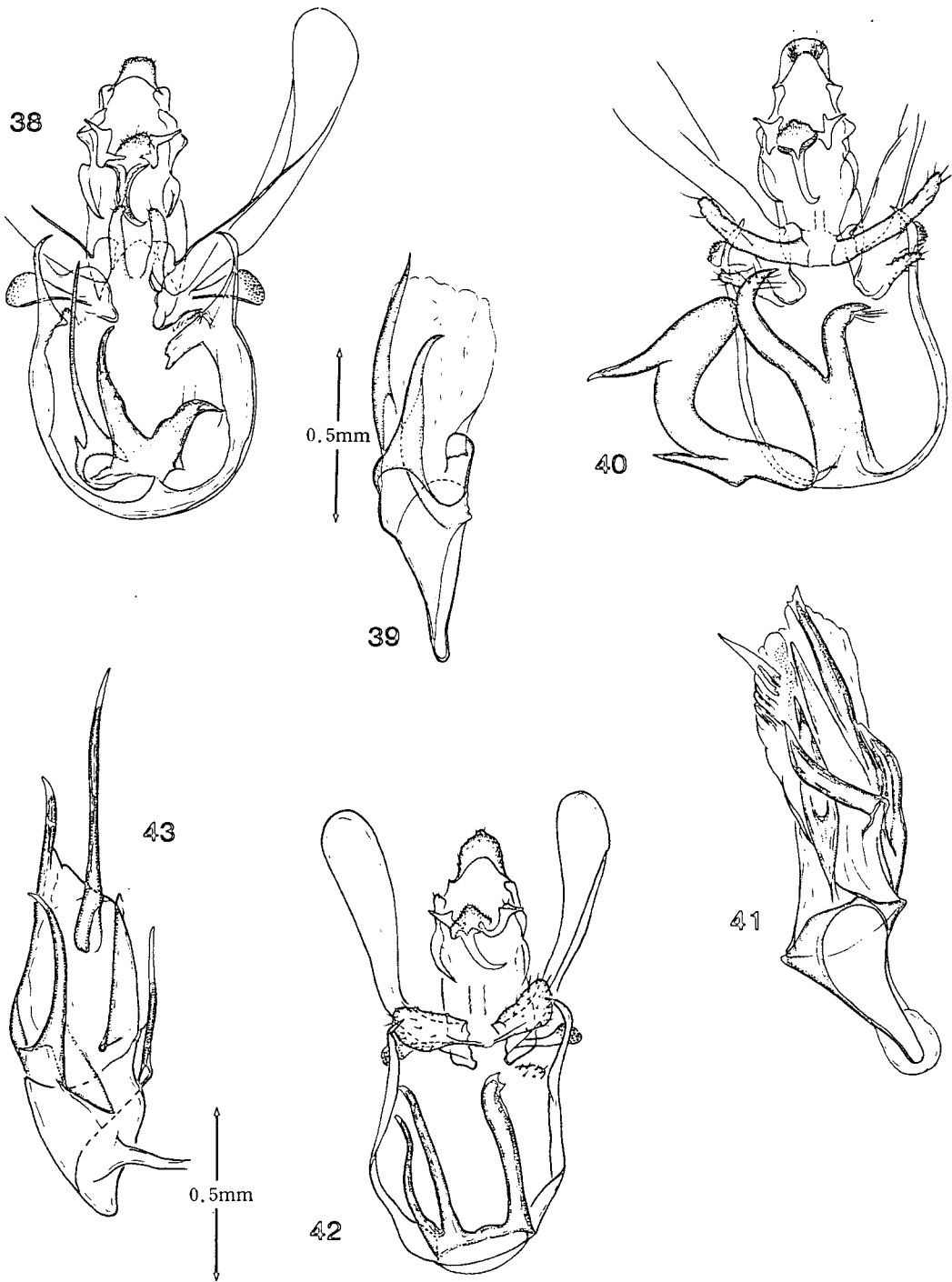
Figs. 15-21: 15, *Dichomeris lushanae* Park et Hodges, sp. nov. (USNM-11561); 16, ditto, aedeagus; 17, *Dichomeris albula* Park et Hodges sp. nov. (USNM-87321); 18, ditto, aedeagus; 19, *Dichomeris crambalaeas* (Meyrick) (USNM-11618); 20, ditto, aedeagus; 21, ditto, venation of forewing.



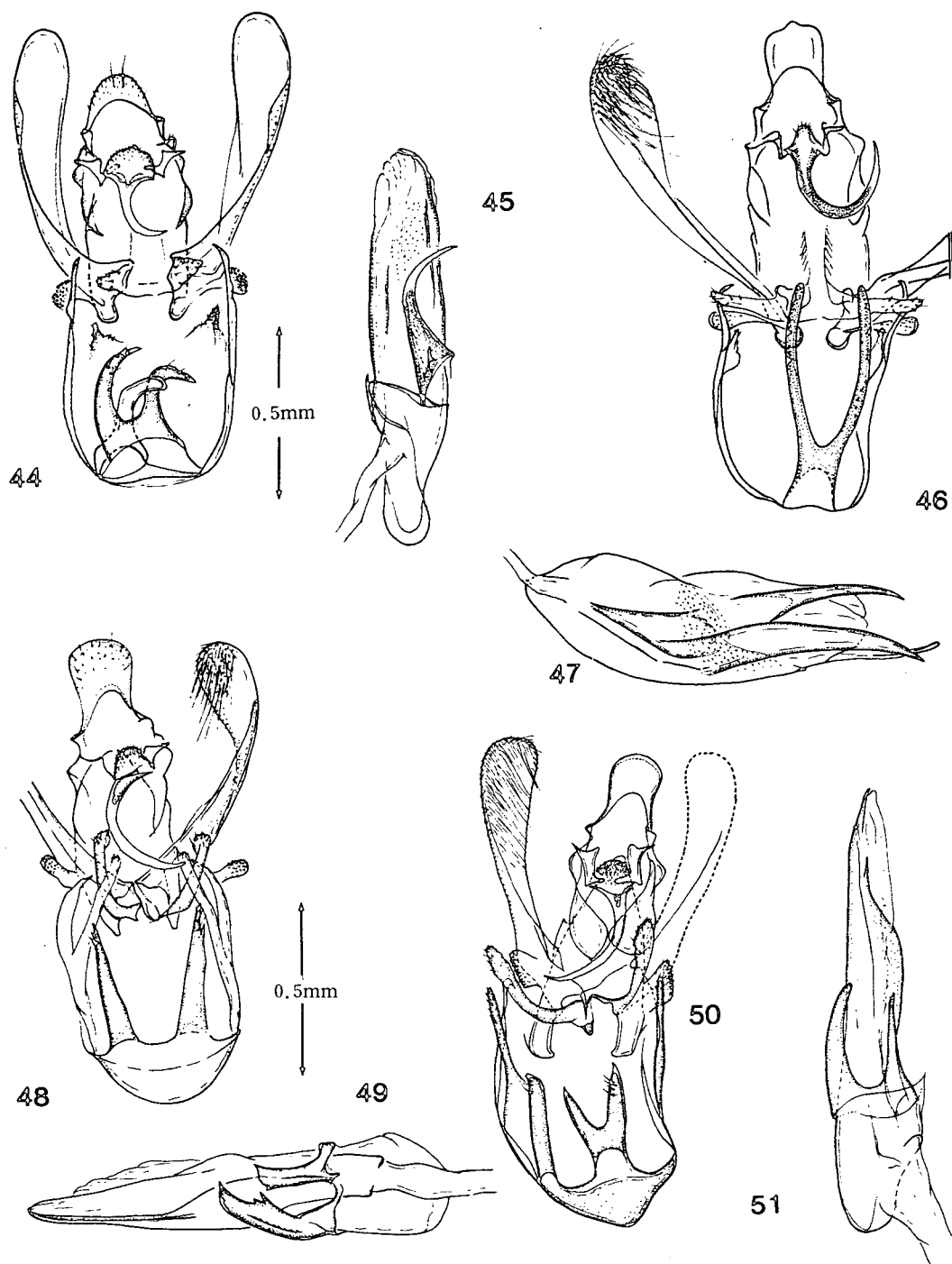
Figs. 22-29: 22, *Dichomeris ferruginosa* Meyrick (USNM-87337); 23, ditto, aedeagus; 24, *Dichomeris ochthophora* Meyrick (USNM-11570); 25, ditto aedeagus; 26, *Dichomeris ochreatea* Park et Hodges, sp. nov. (USNM-87354); 27, ditto, aedeagus; 28, *Dichomeris summata* Meyrick (USNM-11565); 29, ditto, aedeagus.



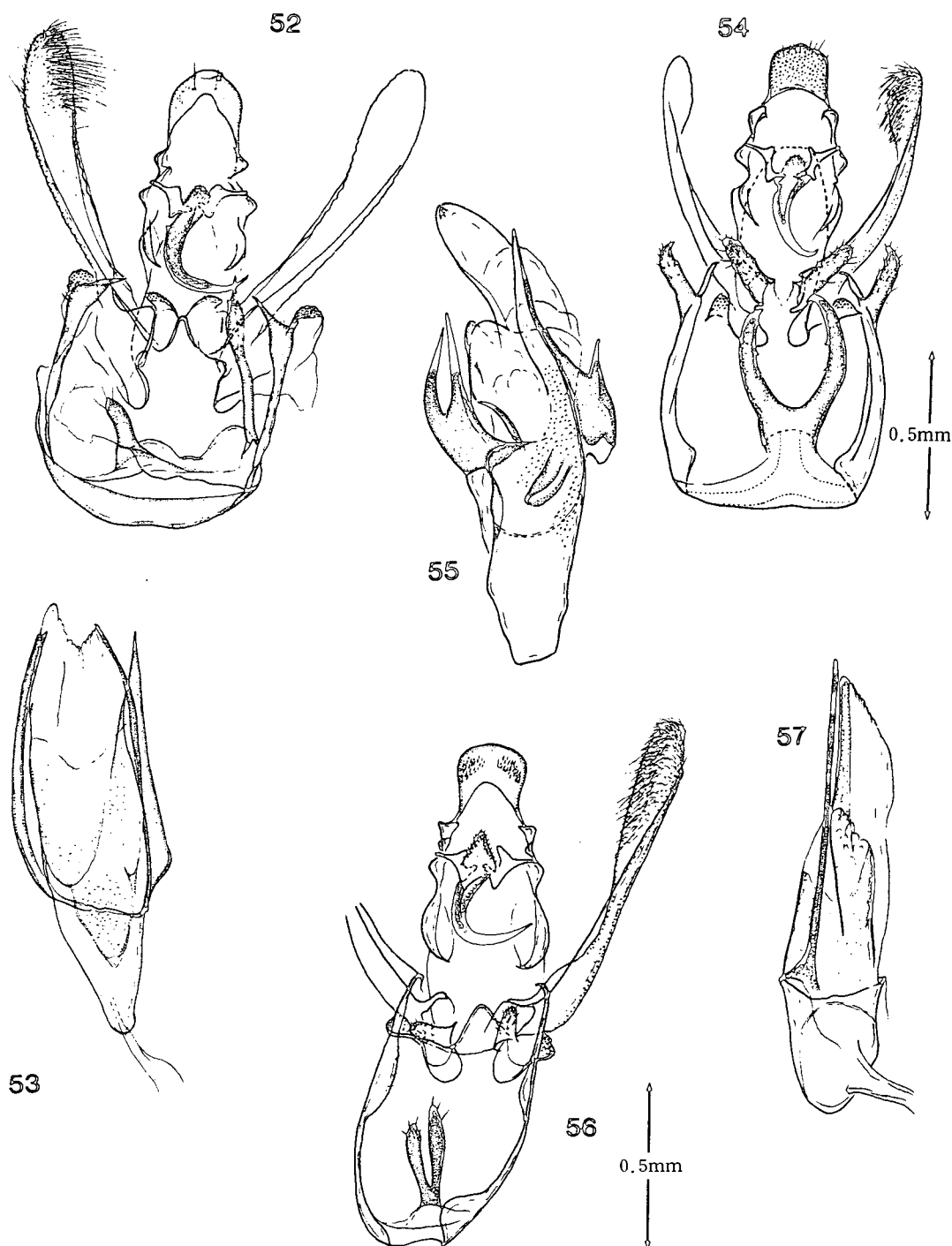
Figs. 30-37: 30, *Dichomeris leptosaris* Meyrick (USNM-11554); 31, ditto, aedeagus; 32, *Dichomeris davis* Park et Hodges, sp. nov. (USNM-11584); 33, ditto, aedeagus; 36, *Dichomeris orientis* Park et Hodges, sp. nov. (USNM-87340); 37, ditto, aedeagus; 34, *Dichomeris horoglypta* Meyrick (USNM-11568); 35, ditto, aedeagus.



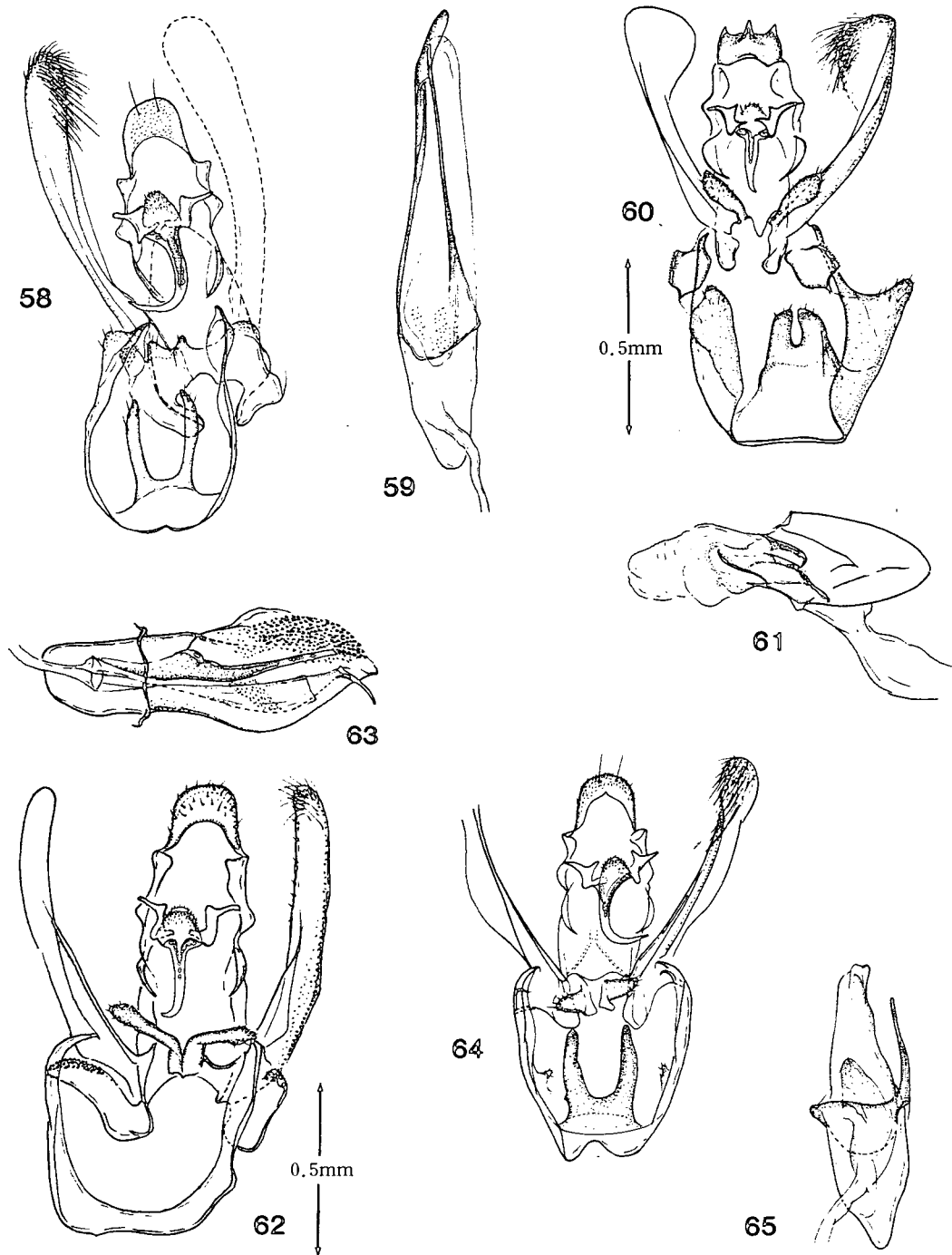
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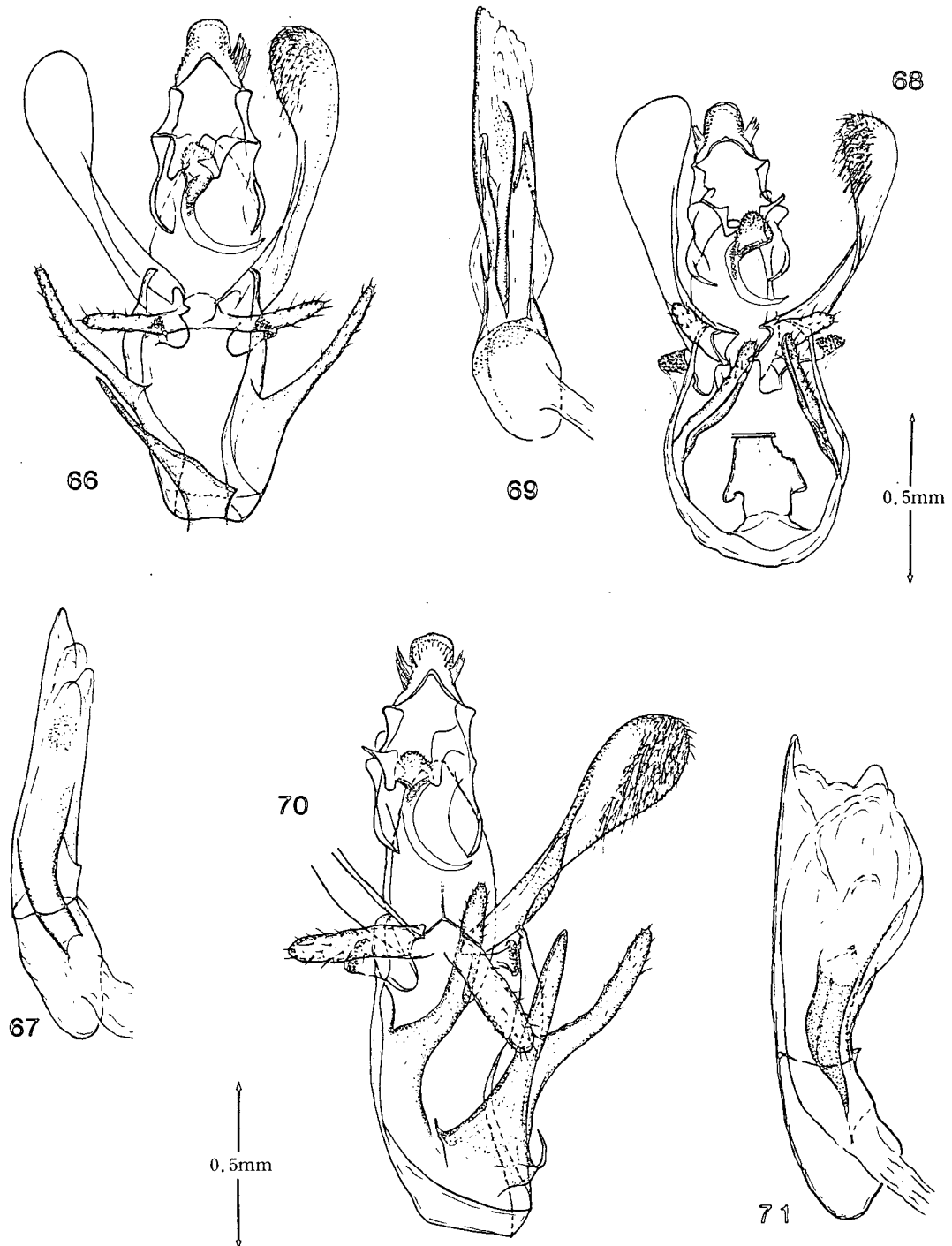
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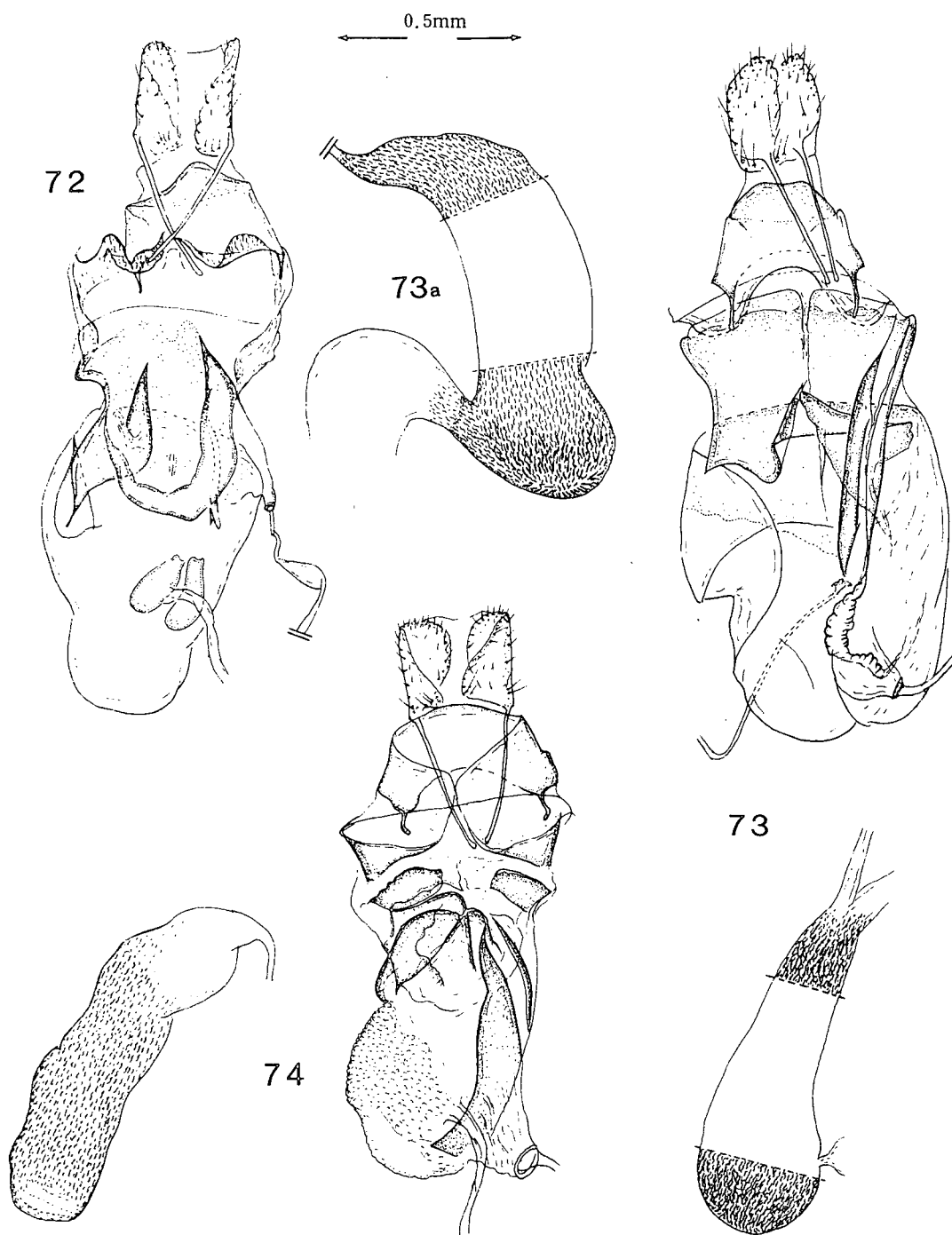
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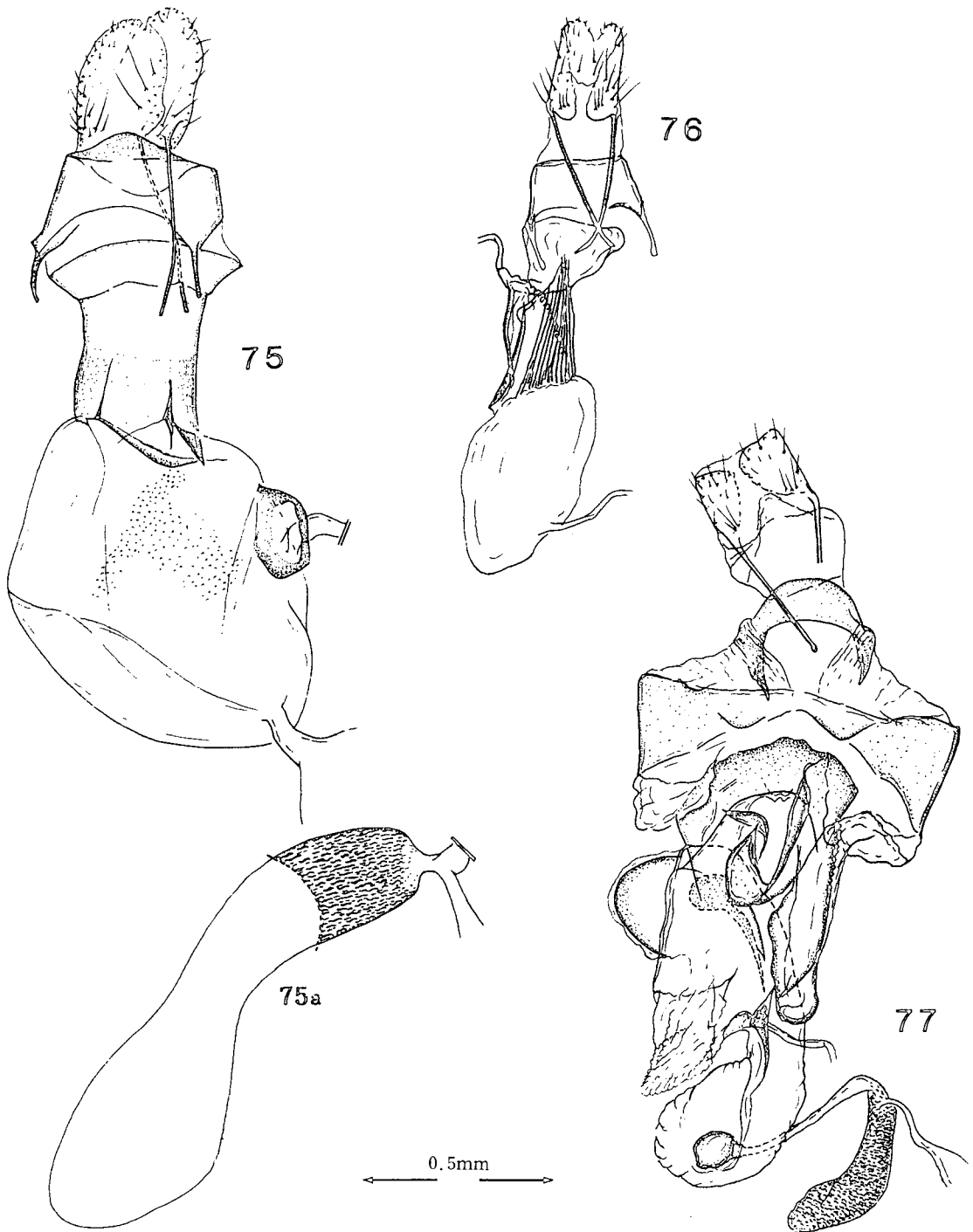
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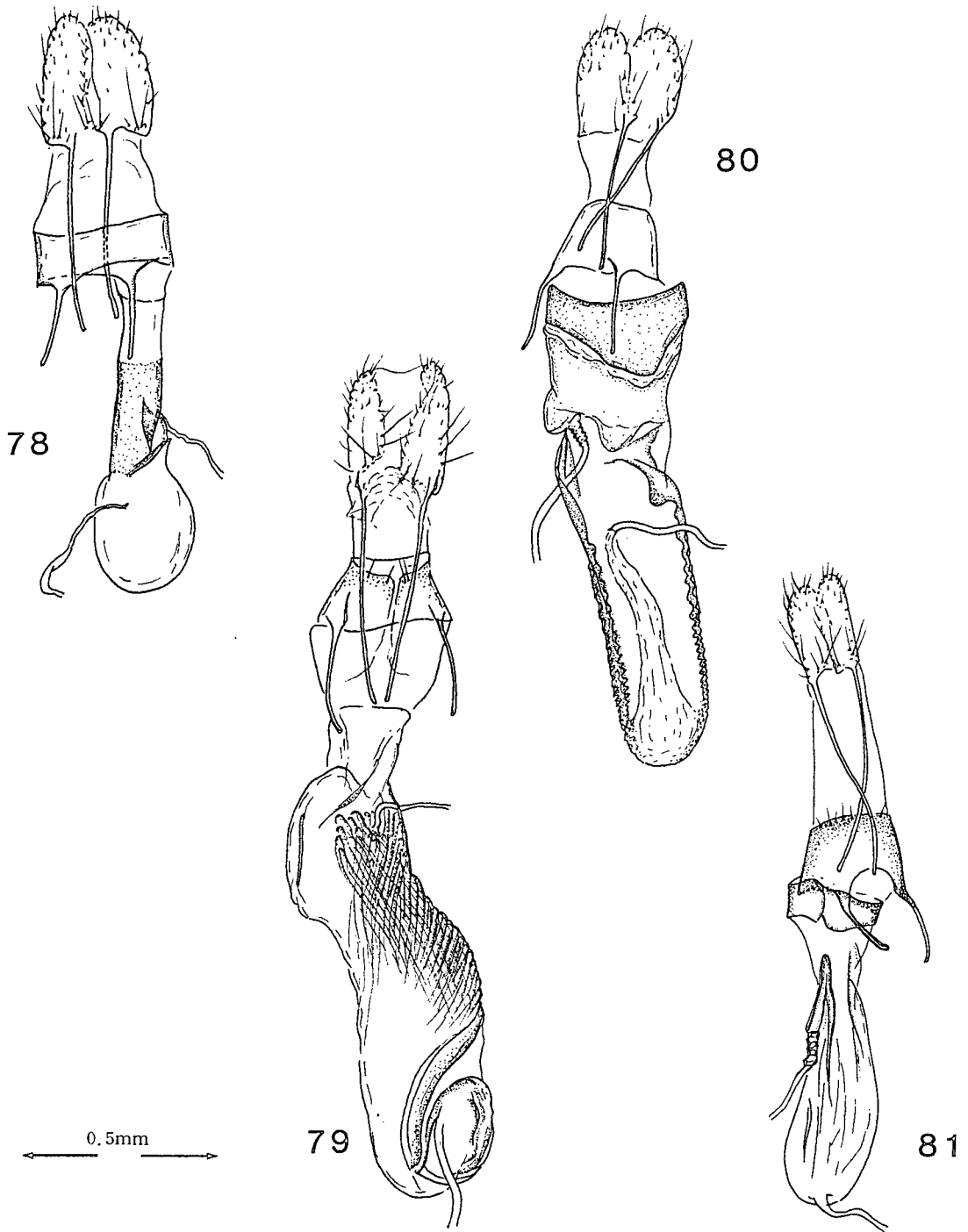
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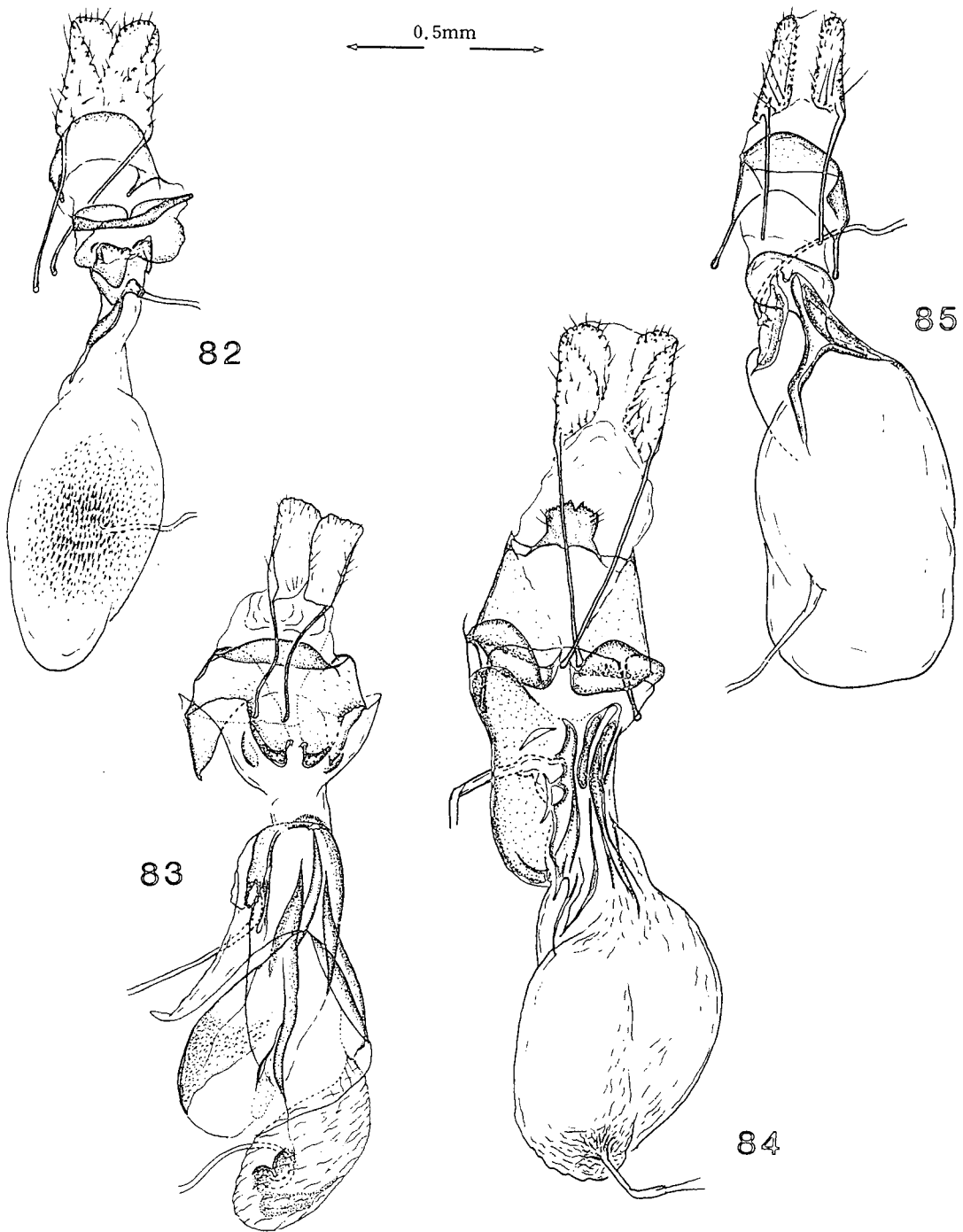
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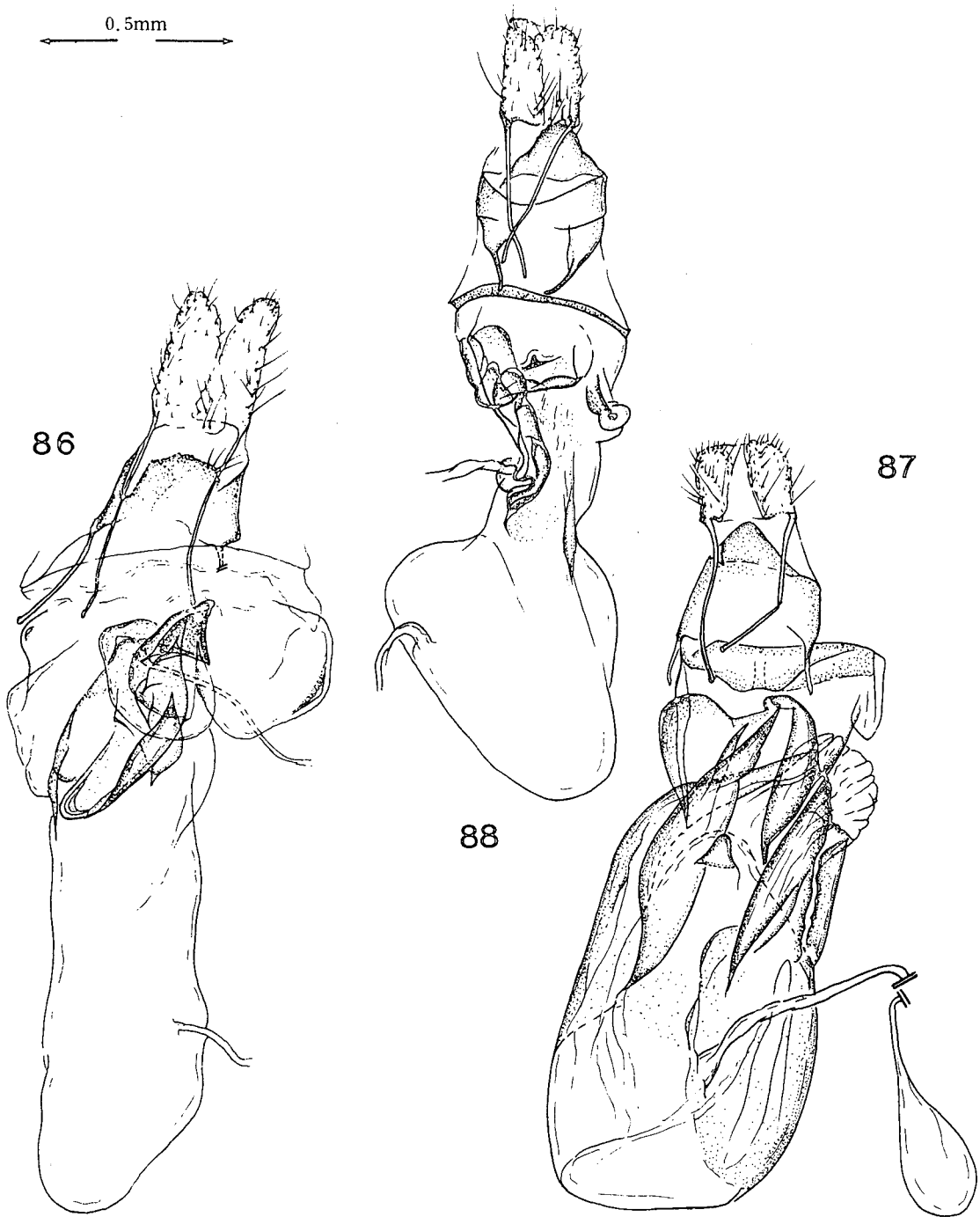
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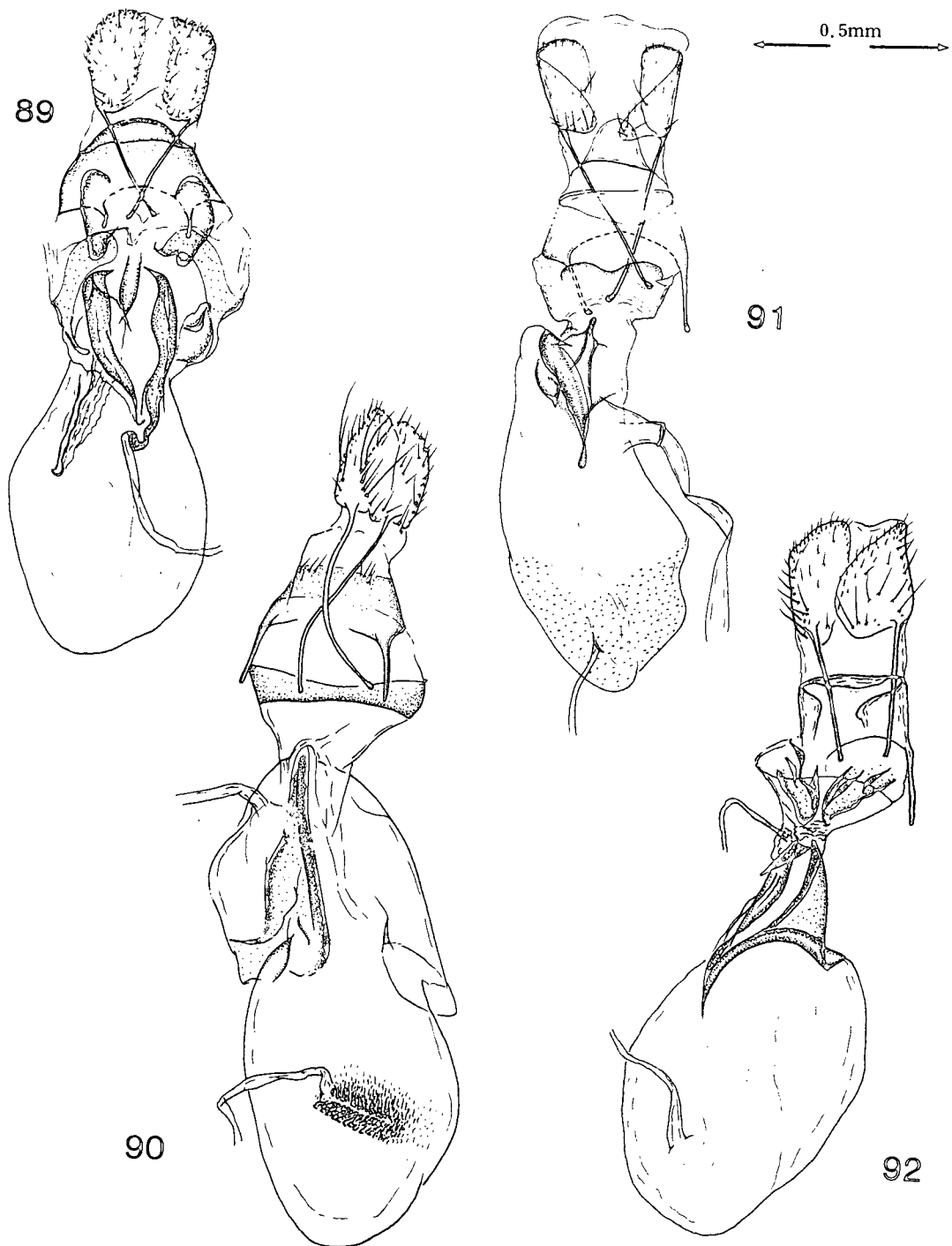
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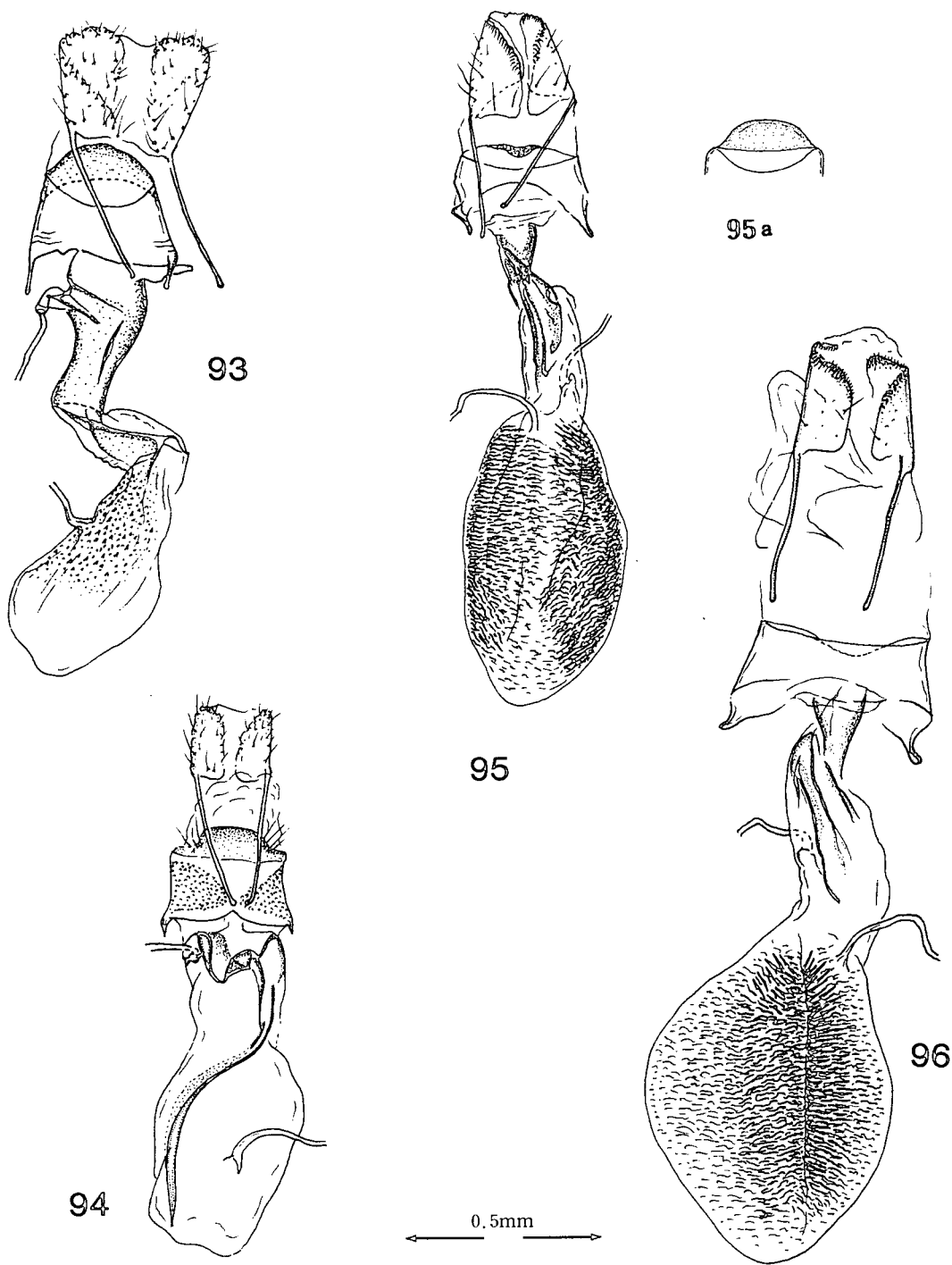
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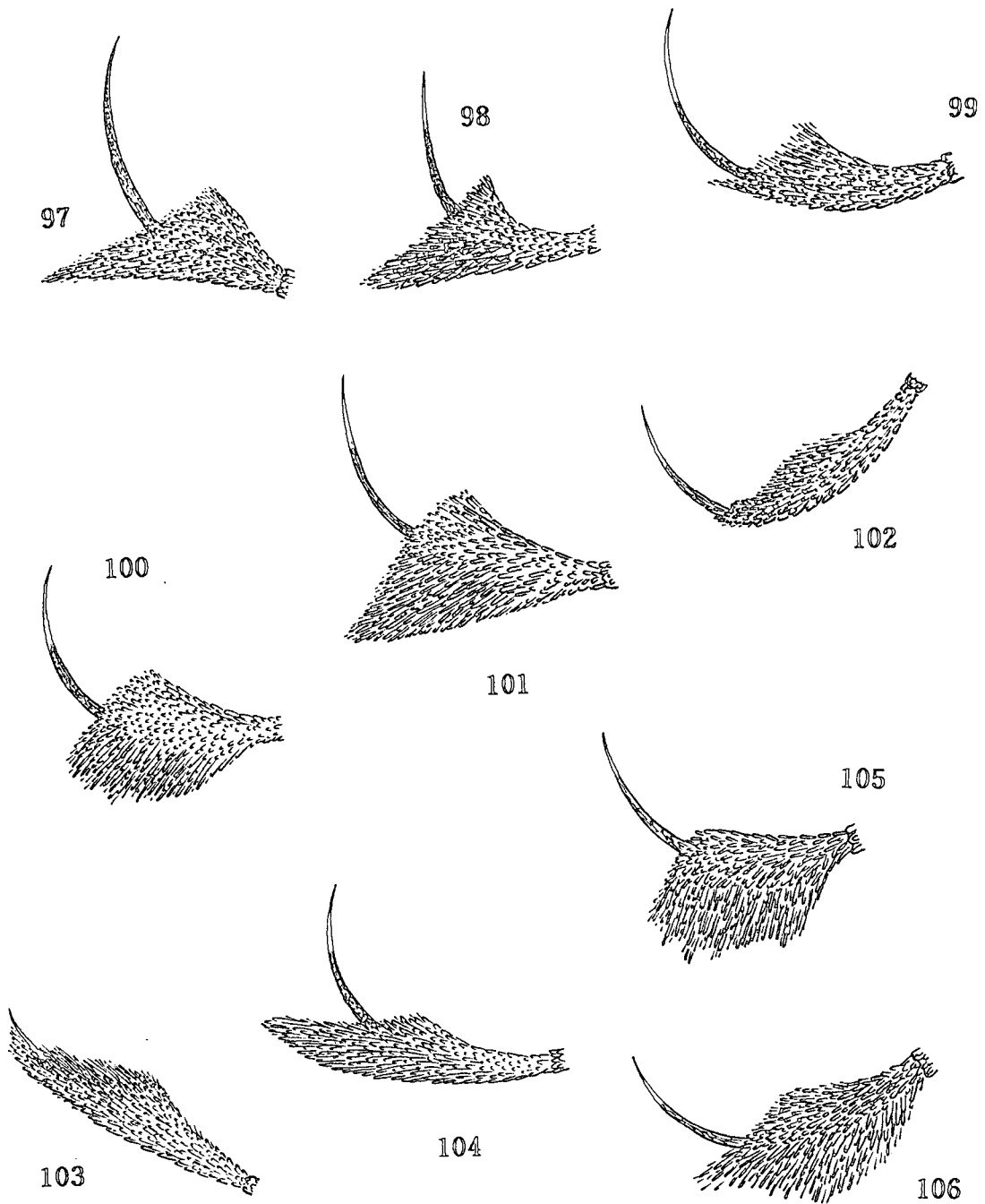
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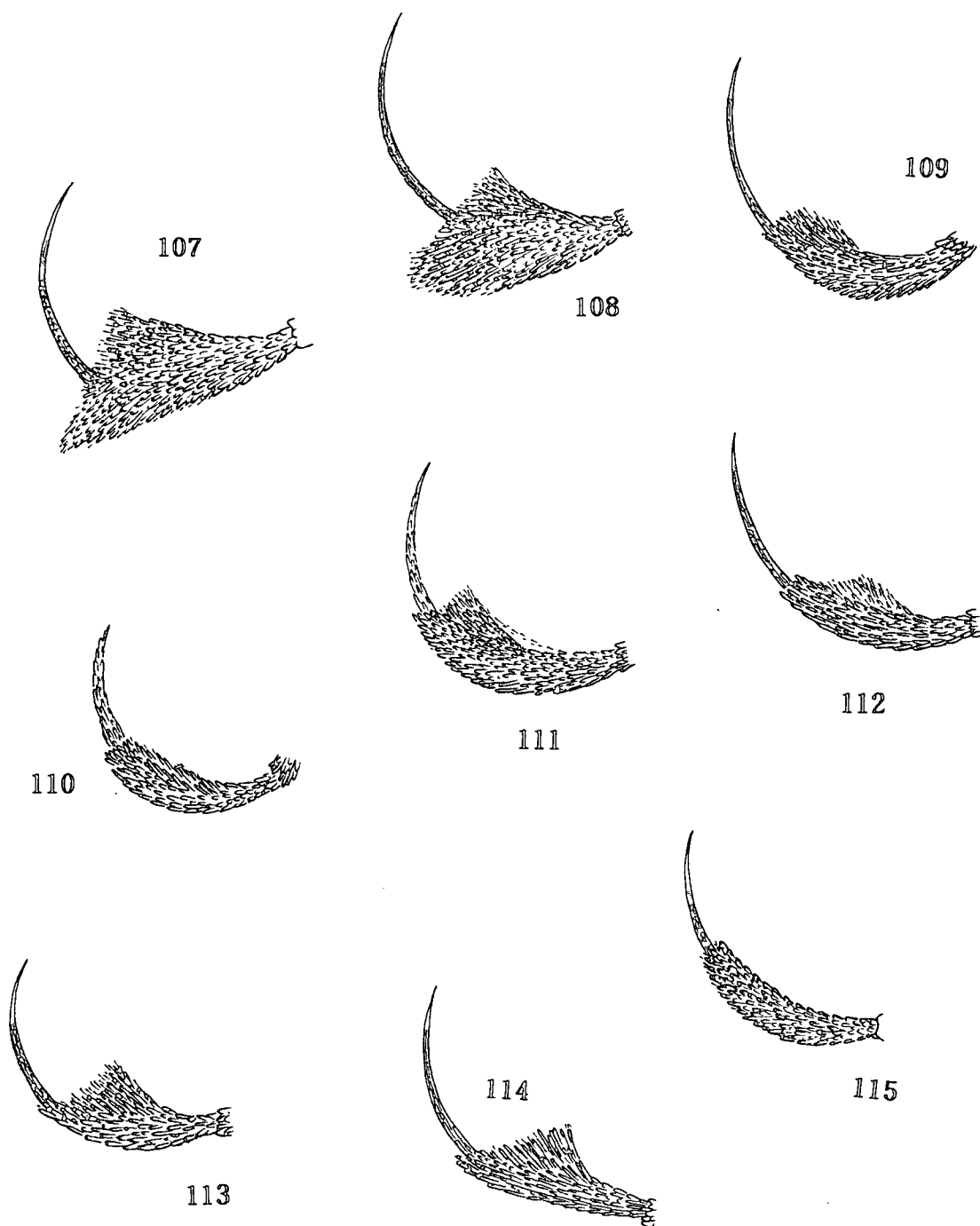
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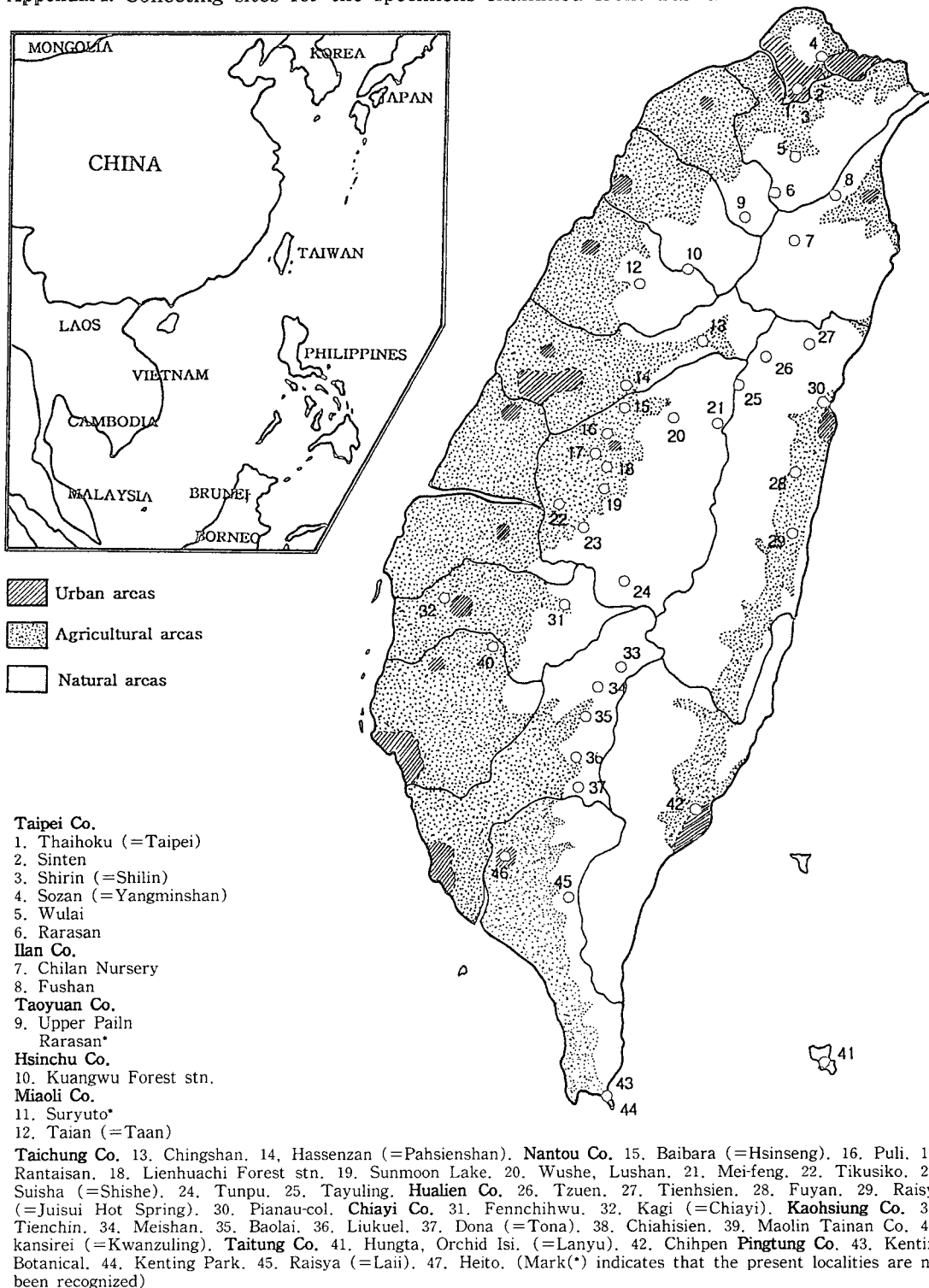


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Appendix I. Collecting sites for the specimens examined from Taiwan



Appendix II. The geographic range of the species of *Dichomeris*

| Species | Palaeartic region | | | | Oriental region | | | | Other regins |
|-------------------------------------|-------------------|---|---|---|-----------------|---|---|---|--------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| harmonias group | | | | | | | | | |
| - <i>harmonias</i> Meyrick | ○ | ○ | ○ | - | - | ○ | - | - | |
| oceanis group | | | | | | | | | |
| - <i>oceanis</i> Meyrick | ○ | ○ | ○ | - | - | - | - | - | |
| - <i>fuscalis</i> Park et Hodges | - | - | - | - | ○ | - | - | - | |
| - <i>ustalella</i> (Fabricius) | ○ | ○ | ○ | ○ | - | - | - | - | |
| - <i>tostella</i> (Stringer) | ○ | ○ | ○ | - | - | - | - | - | |
| - <i>aomoriensis</i> Park et Hodges | ○ | - | - | - | - | - | - | - | |
| - <i>symmetrica</i> Park et Hodges | - | - | - | - | ○ | - | - | - | |
| lushanae group | | | | | | | | | |
| - <i>lushanae</i> Park et Hodges | - | - | - | - | ○ | - | - | - | |
| - <i>albula</i> Park et Hodges | - | - | - | - | ○ | - | - | - | |
| - <i>crambalaes</i> (Meyrick) | - | - | - | - | ○ | - | - | - | |
| pyrroschista group | | | | | | | | | |
| - <i>pyrroschista</i> (Meyrick) | - | - | - | - | ○ | ○ | - | - | |
| lespedezae group | | | | | | | | | |
| - <i>lespedezae</i> Park | ○ | ○ | - | - | - | - | - | - | |
| - <i>quersicola</i> Meyrick | ○ | ○ | - | - | - | - | - | - | |
| acuminata group | | | | | | | | | |
| - <i>acuminata</i> (Staudinger) | ○ | - | - | - | ○ | ○ | ○ | - | Nearctic |
| - <i>ferruginosa</i> Meyrick | ○ | - | - | - | ○ | - | ○ | - | |
| - <i>ochthphora</i> Meyrick | ○ | - | - | - | ○ | - | ○ | - | |
| - <i>ochreatea</i> Park et Hodges | - | - | - | - | ○ | - | - | - | |
| - <i>summata</i> Meyrick | - | - | - | - | ○ | - | ○ | - | |
| - <i>leptosaris</i> Meyrick | ○ | - | - | - | ○ | - | - | - | |
| - <i>mitteri</i> Park | ○ | ○ | - | - | - | - | - | - | |
| - <i>davisi</i> Park et Hodges | - | - | - | - | ○ | - | - | ○ | |
| - <i>horoglypta</i> Meyrick | ○ | ○ | - | - | - | - | - | - | |
| - <i>orientis</i> Park et Hodges | - | - | - | - | ○ | - | - | - | |

* 1: Japan, 2: Korea, 3: Russian Far East, 4: Europe, 5: Taiwan,
6: Southern China, 7: India, 8: Other oriental countries.

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